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# MANUAL

of the

## FURNITURE ARTS *and* CRAFTS

Compiled by  
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AND  
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"To The American Home"





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# INTRODUCTION AND ACKNOWLEDGMENTS

The following is a compendium of facts and information about household furniture made of wood. In submitting it to the public, it has been the aim of the compilers and contributors to make it a simple and understandable work of reference, rather than an all-embracing or technically complete encyclopedia of furniture.

The study of furniture may be divided into two major classifications—the advanced knowledge required by the technician, designer or collector and the simple enlightenment that may be enjoyed by the buyer and user of furniture, by furniture sales people, by the student at school or the novice in the shop and by the layman who seeks to know causes and effects as they are reflected in the objects with which he comes in contact in his everyday life. It is the latter seekers of furniture knowledge that this Manual hopes to serve.

General information of so wide a range as herewith presented must, of necessity, be condensed. If some subjects have not received the attention which, in the minds of those particularly interested, they should have had, it is because a small practical book sometimes serves a universal need better than a ponderous one. To aid the reader in a further and more extended study of any phase of furniture production, complete references have been provided at every step and in every department of the subject.

The compilers have been obliged to rely on so many sources of information and have received so much helpful co-operation from individuals and institutions that any attempt toward a complete acknowledgment herewith may do a worthy friend an injustice. As the work progressed, however, every effort was made, as a matter of courtesy as well as reference, to acknowledge all sources of information.

The compilers are particularly indebted to the Grand Rapids Public Library, which contains one of the largest collections of furniture books, plates, charts, designs and kindred information in existence, for a liberal use of these resources; to its scholarly and efficient librarian, Mr. Samuel H. Ranck, under whose general direction all bibliographies have been compiled; and to Mr. Ranck's able

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Bibliographical credit is included in "Books for Reference", wherever this notation appears, and special credits and references are made in the text matter where the quotation has a direct bearing upon the subject in review.

The compilers have carefully tried to avoid editorial comment, unless based upon statements of regularly accredited authorities mentioned in "Books for Reference", and have endeavored to choose the authors of original articles from among the foremost authorities available.

—A. P. J.

—M. K. S.

FEBRUARY  
NINTH  
1928



PART I

*Narrative of Furniture*



# Narrative of Furniture

FLORIDA STATE COLLEGE FOR WOMEN  
PRIMITIVE HOME INSTITUTE FLA.

## Origin of the Home in Organic Life

The home is the oldest of all institutions. As the central attraction of organic life, it was old before the first man. It was old when animal life was first organized, because it was the place where the crudest and most sluggish of beings considered themselves safe from the ravages of the elements and from their foes. For millions of years all life upon this earth "stayed at home." That home may have been in a stagnant pool where squirmed the single-celled algae and the sightless amoeba; a hollow in the dark earth where the larvae transformed itself into an insect; a crevice in the sedimentary rock where the moth first fed upon the damp darkness, or it may have been on a lofty mountain eminence, covered with ice and snow, preserving over the ages the spark of life which was destined to take its place in the infinite program of survival. It was home to the life that existed there, no matter what that type or species of life may have been. It was the birth of the home instinct from which later animals, vertebrate and invertebrate, reptilians, birds, mammals and primitive man, learned to make homes of their own; to seek some place of shelter and protection, a place to give birth to their young and keep them in safety.

## Human Inheritance of Home Instinct

Hence, it is not surprising that, with the advent of intelligent man, with the birth of the arts, the beginning of social and economic order, the home should have received a mighty impetus toward the sovereignty which it now holds over all that lives. It is still the first and last place toward which we turn. It is still the pivot around which we live our lives, as was the primitive pool to the senseless spores that came and went without a conscious knowledge of how they came or for what purpose they lived. And out of this biological stretch of almost endless time has come a sanctity of the home that has withstood the ravages of all forces that have

tried to invade it. Palace or hut, marble or wood, that sanctity has been the barometer of the cultural vicissitudes of the human race. Wherever in history you find a happy people, you also find that their happiness was based upon the sheltered, protected and sanctified home.

### **Primitive Furniture a Practical Need**

In the sense, therefore, that the home is very old, likewise is furniture one of man's oldest associations. But it is not old as compared with many of his industries, arts or activities. It is not old as compared with the domesticating of animals, with agriculture or the fusion of metals. It is not old as compared even with art itself, which came into being long before anyone thought of elevating a bed from the damp ground or making a table upon which to place his food. But this notwithstanding, whatever primitive man used for his domestic comfort was furniture of some sort. It may have been the log before the communal fire, the rock upon which he sat, or the tree stump upon which he placed the stone or flint utensils which were a part of the industry of his time. These were the ancestors of our chairs, sofas, tables and buffets. But it was many centuries, in fact, many thousands of years, before they returned to him as the furniture we know as such.

### **Origin of Spiritual Influence**

When furniture did take form, it did not come to serve mankind, but its gods. Our earliest civilizations were essentially spiritual. Early man thought more about his gods and their comfort and good will, than he did about himself. When people began to gather in groups and centers, it was largely to worship their gods. The first Babylon was one magnificent temple surrounded by a more or less disordered multitude of clay huts. Consequently, long before man made a table for himself, he built an altar upon which to offer sacrifices to his gods. Long before his home boasted of a chair, his temple had a throne for his deity. This accounts for the ever-present spiritual or ecclesiastic influence in all furniture design.

### **Beginning of the Artistic**

It is significant, also, that along with its spiritual birth furniture received the full baptism of the higher and finer



arts as then conceived by the peoples in this world. Hence, born of the spirit and blessed by the arts, furniture has always lived in the loftier realms of man's cultural and utilitarian surroundings. That is why so much of the thought, effort and cost of furniture is cultural rather than material. Allowing for a moment of digression, have you ever thought of how little it would cost merely to build something to sit upon, to serve as a chair? Or how comfortably you can rest, when weary and worn, on a grassy knoll or on a heap of rags? All the food that you could possibly consume can be placed before you on the crudest of contrivances. That would be furniture, after a fashion. It was, no doubt, the furniture of the prehistoric peoples and of those who preceded us in the dawn of civilization. But as long as man chose his furniture only from the standpoint of his utilitarian needs, he progressed little or not at all. These crude makeshifts conveyed nothing to him beyond their temporary utility.

It would seem that our earliest ancestors felt the need of beauty in their surroundings when they began to reach for the lowest rungs of the cultural ladder. Conservative students of the antiquity of our civilization have placed the origin of art to within 25,000 years of our time. Perfect specimens of the artistry of such prehistoric peoples as the Cro Magnards in Europe, who were the first sculptors and painters, the Ethiopians of Northern Africa, immortalized by the Queen of Sheba and honorably mentioned in Homer's poems, and of the ancient peoples of China and India, have been preserved to us as a proof of their application to furniture.

### **Ancient Purposes of Furniture**

Such furniture as was made then for the gods and for the state, and up to and including our time, has received, all through its history, the best that has been found in nature that could be converted or reproduced through the handicrafts of man. Early furniture was formed after the likeness of mighty gods and strong and commanding animals. The most outstanding artists of all time have contributed to the production of beautiful furniture for church, state and private use, and all masterpieces of sculpture and craftsmanship have been employed in its decoration. Hence, it has held and always will hold, a commanding position in the onward progress of our

society. It has been the criterion of cultural drifts and of the refinement of the times. When the arts have flourished, they have been exemplified in the furniture of their periods, and when all culture and artistry have lagged, as in the Middle Ages, beauty and taste, as reflected in furniture, have suffered in proportion.

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## CHAPTER II

### FURNITURE OF EGYPT AND MESOPOTAMIA

#### First

#### "Golden Age"

There have been several "golden ages" of furniture, the first of which may rightfully be accredited to the period of the great Egyptian ruler, Rameses II, said by some historians to have been the Pharaoh who occupied the throne of Egypt during the days of the oppression of the Israelites. In fact, at 2,000 B. C., furniture seems to be well established in Egypt both as a utilitarian and an artistic part of the life of the ruling classes. Here we find the now common camp or folding stool, chairs of designs and styles too numerous to classify, couches, tables and odd pieces such as are now used in reception and living rooms.

#### Appearance of Decoration and Inlay

It is strikingly interesting, however, to learn that the more ornate furniture of the time was made in Ethiopia, a country which is now known as Sudan and Abyssinia. Here originated, as far as is known, the art of inlay, or intarsia, a form of furniture decoration which was destined to live a long and useful life. Inscriptions in the records of the time convey the information that this inlaid furniture was included in the tributes offered by the black races to Rameses. Carving and woodturning were common on all, or a large part, of the furniture made in ancient Egypt.

#### Description of Egyptian Furniture

All, or most, of the furniture was small, elegantly designed and tastefully decorated. Chairs were artfully covered with cloth or skins, and some with highly embossed leather. The arms and legs were generally carved

to represent the heads or feet of animals, usually those of the lion. The backs of the chairs were light and strong. Frequently the supports of tables and chairs were carved to represent captives bending under their weight and illustrating the contempt in which the Egyptians held their vanquished foes. Gold, silver, ivory and precious metals were frequently used in the decoration and ornamenting of Egyptian furniture. Rare woods, some of which were native and others imported from distant lands, appear in much of what remains to us of Egyptian furniture. Square sofas, about the height of the chairs, the upper part covered with leather or richly colored cotton cloth, were common in the ancient Egyptian household. Footstools of varying designs, adorned with leather or cloth, seemed to form a part of the furniture of the living rooms.

The Egyptian tables, as in our times, were round, square or oblong, supported by one or three legs, often representing captives or slaves. The tops of these tables were frequently carved, inlaid or painted, some having inscriptions praising the hospitality of the host or in some other manner testifying to his distinction. Emblems symbolic of the respect in which the Egyptians held their gods appeared on much of their furniture. On the whole, Egyptian furniture was emblematic of the culture of the times.

## **Egyptian Influence on Other Ancient Furniture**

While historians may disagree as to whether Egypt was the mother of civilization, it is certain that her ancient artists and artisans set the main-spring of furniture influence upon the domestic life, not only of her own people, but upon that of the contemporary and subsequent destinies of the Assyrians, Persians and Greeks, all of whom copied the outline of Egyptian furniture and placed upon it their own superior or inferior ornaments. Likewise, what little is known of the furniture of the Israelites, came, undoubtedly, from their Egyptian associations. Solomon, a thousand years before Christ, borrowed from the Egyptian and Assyrian decorative arts the inspiration for the interior adornment of both the temple and his palace. It is apparent, however, from the instructions of the Lord given to Moses in the twenty-fifth chapter of Exodus that the Israelites were a people long familiar with workings in wood, in turning, carving, joining and inlay. Centuries of contact with Egyptians and their

subsequent associations with the Babylonians during the captivity, perfected this training to a point where later both their architecture and interior decoration acquired a well defined character.

### **Assyrian and Chaldean Furniture**

Rivaling Egypt for the credit of leading mankind from barbarism into civilization were Babylonia, Assyria and Chaldea, with their wealth of biblical associations and ancient landmarks. And close upon these follows the Persian rise, which gave birth to a civilization quite different from its predecessors, yet marked by their influence, especially in the production and use of furniture. These countries did not excel or even equal the Egyptian inventiveness, taste or skill, in making furniture. The Persian lacked the patience of the artist that works for the love of his art. He was a conqueror with little sympathy for the industrial or artistic qualities of those he conquered.

### **Furniture Lacking in Variety**

None of these peoples kept as exact a record of their achievements as did the Egyptians, hence much of their accomplishment in furniture production was lost to history. There is nothing to indicate, however, that their furniture contained anything of exceptional merit. The Chaldeans incorporated in their furniture designs and decoration the figures of their deities, of lions and bulls, with little or no effort toward proportion or symmetry. Their furniture, like their architecture, was bulky and dull and was confined largely to enormous thrones, elevated couches and court trappings. Nor was furniture used as extensively by even the free and wealthy peoples as among the Egyptians. There does not seem to have existed the social requirement of furniture that characterized the more communal lives of the sedentary inhabitants of the valley of the Nile. What little we know about it comes from a few alabaster reliefs of the court scenes during the reign of King Ashurbanipal in the Seventh century, B. C. Occasional references in the Scriptures give us but a fragmentary knowledge of the household furnishings of the Babylonians and Assyrians.

It seems to have been customary among most of the early eastern peoples to chronicle and perpetuate the

memory of their wars and conquests and the greatness of their leaders. They lived, apparently, for the moment, under constantly changing rulers and dynasties. Their principal contribution to the civilization of the time was a set of laws, known as the code of Hammurabi, from which we can glean something of their social and economic lives which, as a whole, left little room for the inventive or the constructive mind that must always be present in any group or society having a desire for furniture or domestic comforts.

There can be no doubt that the Phoenicians traded in furniture as they did in everything else. Still, not an authentic piece of such furniture remains as a proof that they even knew what it was. We are safe in assuming, however, that a people who controlled practically all the trade of the then known society of human beings, had furniture in their homes and for sale.

### **Influence of Economic Standards**

The question which logically confronts any student of these early peoples is, "Why should they have thought of making furniture at all?" They lived for the most part out of doors, on their roofs or in their parks. They were divided into two distinct classes—the free and the slaves. The latter constituted by far the greater part of the populace. And we may be assured that what little furniture they had was distinctly utilitarian. The free, or ruling classes, had little to worry about and spent much of their time in leisure or in directing the work upon their tombs.

### **Ancient Influence on Modern Furniture**

To leave its impress upon history a nation must first of all possess culture. That culture may proceed from the arts—architecture, sculpture, painting—from statecraft, from philosophy, from religion.

The culture of the world, from very ancient times, influences us today. Our spiritual heritage from the Jews is added to the cultural influences of all the other peoples who left us something soul-appealing. All this is summed up in what we call our culture, our civilization. To comprehend fully what we are we must study the past. And nothing is more indicative of the intellectual standard of any age than its home surroundings, and as

nothing represents the home more completely than its furniture, it is necessary for us to study the furniture of the homes of all ages in order that we may come to a full knowledge of the subject that is nearest all our hearts.

---

### CHAPTER III

#### THE FURNITURE OF GREECE

##### **Greek Concept of Beauty**

We have said that all the arts have contributed to the design, decoration and perfection of furniture. Particularly is this true of architecture and beauty of proportions as conceived by the Greeks. Architecture came into being very largely as furniture came into being, to supply the demands of religion, of state and of rulers. The fine arts have ever been the connecting link between the celestial and the terrestrial, and in none of the acts or achievements of mankind has this been more manifest than in the origin, design, building and use of furniture. We often hear the saying that furniture "is made" here and there, or thus and so. Good and beautiful furniture is never "made." You cannot make a painting, a fine piece of sculpture. These are bred, inspired. They are a form of expression of man's inner life. They become more a part of the production and reproduction of life itself than merely a product of life. We take the same care of furniture (or should) that we do of the painting or the statue. We do that unconsciously because it has come down to us as the concept of beauty came to the Greeks, with the cultural rather than with the utilitarian demands of life. We have a reverence for furniture because it is born of the spiritual and consecrated by the arts. Our appreciation of furniture is traditional because it has ever been linked with the finer and higher inspirations and aspirations in the growth and development of our social order.

##### **Pre-Hellenic Culture**

Bordering close upon the shore of Asia Minor, directly south of the mainland of Greece, lies the third largest island in the Mediterranean. It is called Crete. It is an irregular, mountainous piece of country a little larger than Delaware. Recent discoveries and inquiry into the

early history of this island, its people and its civilization, have greatly changed our views of the history of the arts, and many students of the ancient past attribute to the Cretans much of the subsequent culture of Greece.

We know that there existed in Crete three thousand or more years B. C., a highly organized civilization. We know that the Cretans had a form of alphabet long before the Phoenicians had theirs. We know that they conducted a highly organized trade with Egypt and the surrounding islands. We have found, in the light of modern knowledge, that Homer's poems were something more than the inventiveness of a dreamer's imagination. While the early Greeks seem to have no recollection of a time when their forebears inhabited a land other than their own, we are becoming more and more convinced that within that domain must be included the Minoan source of a very considerable part of their history. There is no record of a religious conflict, which is one of the strongest proofs that the peoples of the time were, or thought they were, of a common ancestry. Homer refers to them all as Achaeans, a term used more as a tribute to their distinction than as having any racial designation. Hence, the siege of Troy, clouded as it is in mystery, took place after the close of this early Cretan, or Minoan, civilization, following which came that golden era of Greece, which contributed so much to the cultural happiness of mankind and to furniture and its kindred industries and arts.

### **Beginning of Greek Furniture Enrichment**

But what has all this to do with furniture? Everything, so far as it relates to its history. During this prehistoric period much of furniture embellishment came into being. Wall painting, fresco, metal technique, gem engraving, carving in ivory and presumably in wood, new and improved treatment and ornamentation of earthenware, glazed and painted designs, painted stucco, bas reliefs in alabaster and stone, showing animated figures of animals, gladiators, toreadors, wrestlers and pugilists; life scenes of warriors, corresponding to the descriptions in the "Iliad"; groups of paintings showing court ladies in strikingly modern costumes seated on terraces and balustrades—all these arts and industries, so essential to the building and embellishment of furniture, seem to have originated or received a tremendous impetus on this little island and its



surroundings, during three milleniums before the Christian era. Many of the arts which have been revived, such as polychrome, intarsia, methods of aging color, metal modeling and fusion, the use of the seal, mural decorations, seem to have been known and practiced by the Cretans long before they were introduced as a part of the life and culture of the Hellenic Greeks. In fact, many of them were lost or discarded by the Greeks, whose artistic tastes leaned rather toward the simpler designs, to architecture and institutional progress.

## **Origin of Period Furniture**

When we speak of "period furniture" it is well to bear in mind that all furniture is the outgrowth of two periods, two great epochs in the history of our society. These two periods may be designated as the Early Eastern and Late Western. The Early Eastern embraces the time previous to the advent of Jesus Christ and includes the rise and decline of the great temple civilizations of Egypt, Assyria, Chaldea and Persia. The Late Western may rightfully be dated from the beginning of classic Greek thought as centralized in Athens under the influence of Pericles, Pheidias, Sophocles, Plato and their compeers. After this division, period furniture becomes in a measure a process of adaptations governed by the relative artistic culture of the times or the economic conditions of its peoples. The utilitarian purpose of furniture was established to meet the physical needs and comforts of a sedentary society. Its fundamental lines are governed largely by architecture and its enrichment has ever received, as before stated, the best in all the ornamental arts.

## **Furniture Art and Architecture**

It is beside the purpose of this outline to go into detail as to the technical relationship of the furniture of our times to the architecture of any period. While interesting, it is a study by itself, with a distinct appeal to those who design furniture or who teach the origin and development of arts and industries. But we cannot leave this vital period in the story of furniture, namely, that covering the classic contribution of the Greeks to all that is beautiful and inspiring, without emphasizing the need of some such knowledge. The story of Greek art, as told in any good encyclopedia, will give to the student of furniture



a greatly enhanced understanding and enjoyment of the subject. Such knowledge is far more necessary than the knowledge of periods and adaptations. It bears the same relationship to furniture that the knowledge of Shakespeare does to literature, of Napoleon to history or of Pasteur to medicine. The artistic achievement of the Greeks, particularly during the Fifth century before Christ, is the most marvelous phenomenon in the story of the human race.

### **Permanent Greek Influence**

Every chair, table, bed or furniture contrivance that can be called good or inspiring, has something of this classical heritage. It does not follow that the Greeks themselves had these things. They were for the most part an outdoor people with little need of household comforts or domestic trappings. But, had they anticipated the trend of social life, they could not have contributed to modern furniture more of its life and enchantment or brought about that contribution in a more orderly manner.

### **Domestic Life in Sparta**

There is nothing in the history of the Greeks that would indicate a renown for either making or using furniture. Such specimens of their furniture as have been preserved to us bear the same stamp of refinement, of architectural symmetry and proportion that distinguishes all Greek art. It was a part of Greek life to concentrate its splendor in and around the temple. A complete segregation of the sexes, with the household responsibilities entirely in the hands of the women, isolated the home as a part of Greek life. "The homes of the Greeks," says one historian, "were their public places, their Stoas and Agoras; on these they looked with pride and joy. Only in the Macedonian period, when Greek freedom and greatness had vanished, luxurious private houses came into existence, while at the same time began complaints that both religious and civic buildings were being more and more neglected."

Among the Spartans the home was considered more as an incubator than as a domestic institution. The men ate together in public in groups of fifteen or more, each contributing monthly his share of the food and drink.

So imperative became this custom that, according to Plutarch, King Agis himself, after having vanquished the Athenians, was made to pay a fine because, upon his return from the war, he desired to eat privately with his queen. That the furniture of the Spartans must have suffered, both in utility and beauty, as a result of their manner of living, goes without saying.

While this may have applied to the Spartans, it does not signify that the Greeks were without splendor and grandeur in their homes. It is said that King Leotychides was so accustomed to the Spartan type of dwelling that when he was entertained at Corinth in a stately room he was so surprised to see the timbers and ceiling so finely carved and paneled that he asked his host if the trees grew in that manner in his country.

### **Beginning of Individual Home Life**

With the advent of Alexander, Greek life changed from the public concourse on the temple steps to the more confined premises of the home. The courtyard became the gathering place of the neighborhood group and the home took on an added social and artistic significance. Unlike most early conquerors, Alexander encouraged individual enterprise. He was a builder and organizer with a profound respect for ideas and incentive. Aristotle had taught him fundamentals to which he applied his own fiery imagination. Greek industry received a new impetus, a commercial incentive, which Rome was quick to recognize when the glory of Greece became, in a great measure, that of the then rising mistress of the world.

### **Historic Divisions**

In any discussion of the furniture of the Greeks we must bear in mind several historic considerations that, at times, become confusing to the lay reader. First, we must distinguish between the Myocene period and the period referred to in Homer's poems. Then, we must draw even a wider line between the Homeric times and what is really known of Greek history. Homer makes no mention of the homes of the common people. Nor can we accept at its full value the grandeur of his public places, the palaces of his kings or the splendor of his armies, any more than we can accept the activities of his gods on

earth. There is nothing to prove that this grandeur existed, and even if it did exist, what may have warmed the artistic imagination of Homer would be commonplace, if not crude, in the comforts and artistry of our own times, or in the times of Pericles and Plato, who lived many centuries after the blind bard.

### Description of the Greek Home

The historic Greek home begins about the time of Alexander the Great, or approximately 350 B. C. Previous to this time we have little reliable data on the domestic lives of the Greeks, and such information as is available comes from inscriptions in tombs, on friezes and bas reliefs, from public buildings and from decorations on vases. Relatively few specimens of Greek furniture remain in either museums or private collections.

We enter the Greek home much as we would enter a modern house, through a reception hall, from which entrance is had to other rooms. In this hall, or "entrance room" was usually an ornate chair called *thronos*, from which we derive the word "throne." Vitruvius, the Roman architect and author, says that on one side of the reception hall were tables and on the other the porter's rooms. This can readily be understood from the custom of the Greeks to render the highest homage to all guests. The porter and his assistants were the first to meet the guest, to take his outer garments and provide him with water for ablutions or to drink.

The guest was then conducted through the passage, or reception hall, into the *peristylon*, an open yard or court. "This *peristylon*," says Vitruvius, "has colonnades on three sides. But on the south side are two *antae*, which stand at considerable distance from each other and carry a beam. They form the entrance to a room, the depth of which is equal to two-thirds of the interval between the *antae*." This room corresponds in most particulars to the living room in our modern homes. In the homes of the wealthy it was tastefully and frequently luxuriously furnished with *thronos* and *diphroi* (portable folding chairs), couches, footstools, stands, statuettes, etc.

### Origin of the Table

Here enter again, with even greater significance than manifested in the lives of the Egyptians and Assyrians,

the spiritual associations of early furniture. In this open hall, which, as it were, formed the boundary between the public and private life of the family, was the hearth, or holy place of the house. It was an altar before which was celebrated all the religious acts, feasts and ceremonies in the domestic lives of the Greeks. In the earliest annals of these peoples, the hearthstone was the most sacred of all the home associations. Just how or when it originated is not known. It is believed that originally, in the still earlier and cruder organization of Greek society, it may have been used for cooking food, serving, in consequence, as the center of the family group. Elevated altars were old with the advent of our earliest history. Hence, our table is the natural progeny of the altar and hearthstone and long before it served as a utilitarian accessory in our daily lives it was dedicated to man's spiritual needs, his gods and well-being.

In Homeric times and continuing ever afterwards, tables were liberally used by the Greeks. A small, low table, or stand, always stood before the *thronos* or principal chair. These tables were round, square or oval and were supported by one, three or four legs, usually shaped to represent the legs of animals and terminating at the top in carved heads.

### Historic Basis for Furniture in Suites

"Further towards the interior," writes Vitruvius, concluding his description of the Greek home, "are large rooms where the lady of the house sits with her maids at their wheels. To the right and left of the *prostas* are bedrooms, *cubicula*, one of which is called *thalamus* and the other *ampithalamus*. All around, under the colonnades, are rooms for domestic purposes, such as eating rooms, bedrooms and small rooms for servants. This part of the house is called *gynaikomitis*."

There is a mention in Josephus that Solomon built a special house or compartment for his Egyptian queen and furnished it to her taste, and "there were other smaller edifices for diet and sleep, after public matters were over"\*. This arrangement was followed in the Greek home and may be taken as the basis for the making of furniture in suites such as are modernly used for the bedroom, living room and dining room. A studied classifica-

\* Josephus, Book 8: Chap. 5.

tion of suites does not appear, however, until in relatively modern times.

## Introduction of Fabrics

The furniture in these rooms, from what little we know of it, was artistically designed and beautifully enriched with decorations. In the wealthier homes it was covered with cloth, richly interwoven in color and design. The chairs were, for the most part, portable diphroi. It was the custom among the Athenians to have their folding stools carried after them. A frieze of the Parthenon shows how similar stools were carried on the head by wives and daughters of the *Metoīkoi* on the event of the Panathenea.

The thronos, or single chair, was of careful workmanship, usually made of heavy wood and profusely carved. It was one of the largest pieces of furniture in the Greek home and was reserved for the master of the house or for the guest of honor. In the temples or public places, the thronos was usually wrought in white marble and used by judges and by the leaders of the people. Many classical designs of the chairs for the temple, theater and stadium are being used today in churches, auditoriums and theaters, the most popular example of which is the marble chair which stood in the theater of Dionysus at Athens.

Of the bedroom furnishings of the Greeks little is known. The earliest reference to a bedstead is contained in Homer's narrative of the return of Ulysses to Ithaca.\*

## Privacy of Sleeping Room

The bedroom and its contents were as sacred to the domestic privacy of the Greeks, as their altars were sacred to their gods. An oath sworn by the nuptial bed was as binding, or nearly so, as any promise made to their deities.

Asiatic and African influence and luxury, however, soon converted the Greek bedroom from its simple modesty to a more luxurious and pretentious chamber. The coarse and heavy Homeric bolsters, long-haired woolen blankets, pelts and skins made way for linen sheets, feather mattresses and pillows. Cushioned daybeds appear shortly after Alexander. They were called *klinai* and were often

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\* Homer's *Odyssey*.

covered with gorgeously colored materials. As with the diphroi, the beds were often made to fold up like a modern hospital cot and carried on journeys or from place to place.

### **Principal Woods Used**

All the visible woods on Greek furniture were carefully finished, carved or inlaid. The latter form of decoration was not as common, however, as in early Egyptian furniture. Maple and boxwood seem to predominate among the materials used and veneering was an established form of furniture enrichment.

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## **CHAPTER IV**

### **THE FURNITURE OF ROME**

#### **Roman Furniture, a Composite**

The Roman was not a creator. Strange as it may seem, there was little original about him, powerful and great as he was. But as a "convertor," he has never had an equal. Rome was able to find, take and use the best and surround it with an intensely Roman atmosphere. In our days of trust tendencies, he would be called a "consolidator," because of his peculiar aptness in consolidating for his own benefit all that previous civilizations had created. But in these conversions and consolidations the Roman lost much of the finesse and technique that obtained, particularly in the arts. The Athenian, visiting Rome in the days of Augustus, while impressed with the splendor and bigness of things, "would not have forgotten the exquisite refinement of the Parthenon or the graces of life in general in his native city," says Showerman in his splendid work, "Eternal Rome." And, likewise, the same visitor would no doubt have been impressed with the domestic sanctity of the Greeks as compared with the more liberal, "open-house" life of the Roman as expressed by Roman furniture and the Roman manner of living. Then, as now, the furniture of the times told eloquently and definitely the story of domestic life.

While Roman furniture, therefore, may be said to resemble that of the Greeks, it received many of the modifications that were applied to the Greek arts in the hands

of the Roman and Etruscan artist and craftsman. It became more ornate and, perhaps more cumbersome. In his furniture, as in the architecture of his temples and villas, the Roman tried to combine Greek delicacy with Egyptian profoundness and Etruscan fantasy. The result was a combination which finds its best example in the pillar and its enrichment which is known as the "composite."

## Contribution of Pompeii

Much of what we know of Roman furniture comes from Pompeii, destroyed by a volcanic eruption of Vesuvius in 79 A. D., and rediscovered in 1748. Only a few examples of the furniture in Rome itself have been left to us, and these may be found in the principal museums of Europe and America. Even in Pompeii, we learn more about furniture from the wall paintings than from actual remains of the furniture itself. Pompeii was one of the foremost seats of Roman culture and a residential center of the rich. Life progressed there about as it does today in the better suburbs of the larger American cities, with their theaters, societies and closely knitted urban interests. Hence, from Pompeii we are able to judge, more truthfully perhaps than from any other source, as to the furniture of the times and its uses.

## Distinctions in Chairs

Here we find again the simple folding stool, though larger than those in use during the Alexandrian period in Greece, and more ornate. There also is the backless chair, chairs with low and high backs and the thronos, all derived more or less from Greek inspiration. The word *sella* was the generic term used to designate chairs of Greek form as distinguished from the chair with a back, which was called *cathedra*. The latter bears a close resemblance to our modern drawing room chairs, with a semicircular back and high and somewhat massive arms. It was a favorite chair among the women of the household, as in the earlier Roman times it was considered effeminate among men to sit in comfortable chairs. Corresponding with the Greek thronos was the *solium*, the seat of honor. This was a heavy chair, with a high back, and was usually mounted on an elevation. It was highly ornate, skilfully carved, and was frequently the most out-



standing piece of furniture in the home. Roman chairs of all classes were often covered with cushions in rich colors and gorgeously embroidered, with tassels and fringes reaching almost to the floor. Among the chairs used by the magistrates and the nobility on public occasions were the *cella curulis*, a folding stool made of ivory or bronze; the *subsellium*, a low, ornate bench capable of seating several persons, and the *bisellium*, a double chair without a back. These chairs were used according to rank or occasion at public festivals, in courts and on the event of the proclamation of imperial decrees.

### Couches and Sofas

The most useful piece of furniture in the Roman home was the couch of which there were two principal types, *lectus lucubratorius* and *lectus cubicularius*, one with and one without such conveniences as reading desks or a place to temporarily deposit things at hand. The couch was used not alone for sleeping, but for meditation, conferences, reading, writing and for eating. The later Roman abandoned the early republican custom of taking his nourishment standing or sitting erect. His wife usually sat at the foot of the *lectus*, the children on separate chairs and the servants on benches, similar to the *subsellium*. When a number of guests partook of a meal, a square table was placed in the center of the room and surrounded on three sides by as many couches as were necessary to accommodate all present. When necessary, each couch could be made to accommodate as many as three persons. These couches were equipped with low backs, against which were placed cushions for the elbow and for general comfort. They were usually enriched with bolsters, carpets and woven fabrics, colored to harmonize with the walls and decorations or with the mosaic pavement of the *triclinium* (dining room).

### Roman Tables Used as Ornaments

There is probably no piece of furniture on which the Roman displayed more of his desire for ornamentation than on the table. Tables, large and small, simple and ornate, were a part of the furnishing of every room. Pedestal tables having one large, single leg, tripods and four-legged tables, folding tables—much like the card tables of today—formed a part of the furniture of every well equipped



home. Particular attention was paid to the form and embellishment of table legs. These were often carved to represent the heads and foreparts of animals, of animal legs and of human beings, bending under the weight of the tops. Sometimes the top of the table rested on a network of tracery, mostly in metal in which were entwined scrolls, garlands and figures in charming profusion. Many of the exquisite Pompeian designs now used for nearly every form of embellishment, have been taken from the table legs illustrated on the walls or on vases found in Pompeii. Singularly, most of these tables were for ornament only, as they do not appear to have met any practical purpose, except, possibly, as a support for statuettes, vases or ornaments.

Among the richest works of art entering into the Roman home that have been preserved to us are a number of superbly carved marble tables, two of which are to be found in the Metropolitan Museum of Art in New York city. The Cleveland museum is also rich in Roman marble furniture, and other bits of it are scattered throughout the art centers of Europe and America.

### **Status of Roman Furniture**

The Roman may be said to have been the first among the civilized peoples to place a high cultural value on his furniture. While costly furniture appears in all early civilizations, it was conceived largely for show, or for public or religious functions and ceremonies. The people in the eastern and tropical countries spent little time indoors. Warfare and conquest were the principal occupations and neither was conducive to a cultural appreciation of beautiful home furnishings. The Roman, on the other hand, became thoroughly converted to ease and comfort and developed a marked taste for attractive surroundings. This is evident by the many little knickknacks which appeared in the Roman home, such as ornate footstools, stands, small movable bookcases, portable writing desks, in fact, every contrivance found in the modern home was a part of the interior furnishings of the dwelling of a Roman citizen of wealth and distinction.

### **Furniture Used by the Select**

It should be observed here that the home furnishings described were almost exclusively for the rich, the nobility,

for public officers and for the priesthood. Furniture was comparatively unknown to the common people. Any member of the lower classes who presumed to indulge in attractive home surroundings was censured or looked upon with displeasure even by his own contemporaries. The further fact that practically all the artists and artisans, designers and craftsmen making furniture were largely imported from Greece or from the Etruscan provinces, confined the industry to a select few who vied with one another in obtaining something new and original.

### **Methods of Merchandising**

It is not known that furniture was sold as a utility, or in the public markets except when imported and then, no doubt, at private sale. This method of making and selling furniture continued to within almost recent times, when machinery made possible its production on a larger scale and when the social position of the common man was sufficiently commanding to permit of both the expense and the enjoyment of comfortable home surroundings.

### **Domestic Usefulness**

We owe, therefore, much of our enjoyment of beautiful home surroundings to the Roman and to his singular ability to popularize the arts, particularly in their application to our daily lives. The Greeks confined much of their ability, knowledge and initiative to the building of their temples and public edifices. The home was secure against public intrusion. What visible beauty it contained was the exclusive property of the family and its recognized head. The later Roman kept open house, prided himself on his villas, his gardens, his furniture, his decorations and his food. Roman classical literature teems with eloquent praise of hospitality and the enjoyment the citizen found in his beautifully furnished home.

Before we leave the Roman home, with its grandeur and studied lavishness, it may be well to recall that the eventual abandonment of the home by the Roman leaders; their increasing desire for less uplifting contacts, for dissipation and brutal public exhibitions, were the rocks upon which the empire crashed and fell. One of the most stirring appeals for the home is contained in an excoriation of the trend of the times by Cato the elder, who warned the Roman senate that in the sanctity of the

home lay the safety of the state. But that is a long and a sad story and may not bear directly upon the study of furniture. Let it suffice, therefore, that the Roman was happy, powerful and progressive when he looked to his home and its cultural refinements. When he forgot these, he and his country died.

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## CHAPTER V

### BYZANTINE FURNITURE

#### **Decline of Roman Leadership**

With the decline of the Roman Empire might be said to end the first half of our known civilization. While this may not apply numerically to years or even centuries, it does apply to our customs, political and economic institutions, to many of our laws and traditions, to social usages and spiritual concepts. Rome became the dividing line between the old and the new, between slavery and freedom. Once mistress of the world, she was torn in two—one part, the west and including most of Europe, to be divided into small and constantly struggling fragments; the other, the east, to be held together for more than a thousand years in a state of continuous decay. This concerns the Empire of the East, its arts and furniture.

#### **Beginning of Eastern Dictates**

Constantine the Great established Constantinople, 330 A. D., thus physically dividing the Roman Empire into two parts which were known as the Eastern and Western Empires. It had long been thus classified, although until the advent of Constantine the seat of both empires was at Rome. To fully understand the effect of this great division upon both the exterior and interior arts of the time, the reader will find a study of the Byzantine Empire, as it was often called, interesting and instructive. The best and most authoritative account of these times may be found in the "Decline and Fall of the Roman Empire," by Edward Gibbon, one of the greatest historians of all time.

## Facts about Byzantium

Art is the reflection of natural law in terms of beauty—a form of life—spiritual life—and any life that is born in a state of decay cannot be expected to endure. The Byzantine Empire covered practically every part of what was once glorious Greece. On the ruins of this glory, it set up a decaying civilization and a concept of the beautiful that must always remain somewhat of a tragedy to the established order of things. There is little to say of the furniture of this period, but much to learn about causes and effects. The story of Byzantium, and of the arts that bear its name, is a story of spiritual and material starvation, because its history covers a time of intense religious conflict. There are few exceptions to this starvation, such as exemplified in the great St. Sophia, originally a Christian cathedral, but for the past several hundred years a Mohammedan mosque. A few interesting examples of the Byzantine arts have been handed down to us, but nothing that may be said to have inspired later generations or served as an example of constructive progress.

## Decline of the Home

The Byzantine home, excepting, of course, that of its dissolute and often tyrannical emperors and a class of patronized rich, was entirely destitute of artistic life or spiritual or material comfort. It is doubtful if at any time in the history of our civilization the home of the common man has been poorer or less honored. Not a single specimen of home furniture from the early Byzantine remains to us as a clue to how its people lived. The only specimens in existence are a few ecclesiastical chairs and copies of others in manuscripts or friezes. Pagan Rome, which did not permit the common man to share in the luxuries of life, had infinitely more to show for its general domestic culture than had the Byzantine Empire at a much later period. All because in Byzantium the home was not recognized as a part of human progress. It was not respected and not considered either by laws or social traditions. The emperor, safely ensconced behind the impregnable walls of Constantinople, was everything.

## Power of the Nobility

"The populous countries of that empire," says Gibbon, "were the seat of art and learning, of luxury and wealth; and the inhabitants who had assumed the language and manners of Greeks styled themselves, with some appearance of truth, the most enlightened and civilized portion of the human species. \* \* \* the princes of Constantinople measured their greatness by the servile obedience of their people. They were ignorant of how this passive disposition enervates and degrades every faculty of mind. The subjects \* \* \* were equally incapable of guarding their lives and fortunes against the assaults of the barbarians, or of defending their reason from the terrors of superstition." Byzantium has taught us two things as they refer to human progress. The first is that any art or knowledge acquired or used only by a select few can never be of any permanent value to the peoples of this earth. And, second, that where the home and the common man are neglected there is no complete happiness, progress or spiritual or material repose.

## Furniture Overloaded with Detail

Byzantine art, as reflected in what little we know of its furniture, together with what we positively know of its architecture, is based on no permanent or classical foundation. Its decorative enrichments and examples of the finer arts are disproportionate and almost a caricature on those of the ancient Greeks and Romans. Its embellishments are overloaded with an intensely religious atmosphere plus a frillery of detail which is neither beautiful nor inspiring. Labored panels, where more attention is given to filling up space than to proportion and symmetry, form a part of nearly every work of Byzantine art. The little furniture that remains to us is distinct only in the infinite amount of work and labor it represents. In this respect, the artisans of Byzantium set a wholesome example to makers of furniture. They gave a stimulus to carving, of which remains a few exquisite examples, as, for instance, the chair of Maximian, archbishop of Ravenna at the time of the Emperor Justinian, and which is still to be found in the cathedral of Ravenna. It is carved in ivory, depicting scenes from the lives of Jesus and Joseph, profusely framed, or counterbalanced with rich carvings of

floral and animal life. This chair may be said to represent the highest attainment in the furniture of the Byzantine period.

### **Chair of St. Peter**

By far the most interesting, inspiring and famous chair in all history is that of St. Peter, in St. Peters' church at Rome. It is believed to be a Byzantine work of the Sixth century. Much of the wooden portion, which is of acacia, is decayed, but the ivory carvings, representing the labors of Hercules, are still intact. It is kept under a triple lock and is exhibited but once a year. A few pieces of an earlier oaken chair are said to form a part of the existing one. So many conflicting stories have been written about the Chair of St. Peter that much of its legend must of necessity be discarded. That it is a true piece of workmanship of the earliest Byzantine period and that it has seen, perhaps, centuries of real service, is unquestioned.

### **Appearance of Religious Influence**

The so-called ecclesiastical influence becomes noticeable very early, not only in the eastern Byzantine furniture, but as well in that used by the peoples, churches and kings of western Europe. One of the only specimens of furniture of this period which has been handed down to us is the chair of King Dagobert. It is now in the Louvre, Paris, the former palace of the French kings, which contains one of the greatest collections of the arts of all times. The chair is made in two parts. The lower part is said to have been made by St. Eloi, about 700 A. D., and the arms and back were added by the Abbe Suger, in the Twelfth century. Originally it was a folding chair.

### **Homes of Wealthy**

From what we can gather from customs and usages of the Byzantine period, the homes of the wealthy were gorgeous in their equipment. Such furniture as chairs, couches (which continued to be Roman and Greek), chests, caskets, mirrors and toilet articles, were profusely enriched by gold and precious stones. Probably at no

period in either ancient or modern times has there been a more lavish use of costly metals and precious stones in the furnishings of palaces and mansions than was displayed by the rich of Constantinople and other populated centers of Byzantium. As the well-to-do families were crowded into the cities by the barbarians, they took with them all that could easily be transported, which was their gold and articles of value. As these families declined or fell into disfavor with the emperors, the amount of the property which was confiscated by the crown was almost inestimable and added to the sum total display of one of the foremost "show times" in the story of civilization.

### **Destructions by Barbarians, Turks and Christians**

Much of this finery was destroyed partly by the barbarians and partly by the Turks, who alternately laid siege to the Byzantine possessions. Magnificent metal tripods, tables, priceless importations from Rome, when Constantine ordered what was practically an exodus of the first families to Constantinople, were remelted into other forms of use. Many valuable articles of both furniture and decoration antedating the Byzantine period were destroyed by overzealous Christians, who considered these things defiled by paganism.

### **Extremes of Living**

It must also be remembered that geographically the countries which made up the Byzantine empire did not require the type of homes generally known to the European and American. In tropical and semi-tropical climates, people live, for the most part, out of doors, although in Egypt, Greece and Rome this did not materially deter home development. As we have stated before, Egypt, the warmest of all these countries, developed a very high type of home, as did Greece and Rome. In Byzantium, however, everything was measured by extremes—extreme poverty and abandonment, or extreme wealth and consequent decay.

### **Not European Style**

The Byzantine type of art and beautification developed but little in Europe. The protection afforded by western kings and emperors to refugee artists and artisans

from Byzantium, gave the Byzantine arts a temporary hold in France and Germany between the Sixth and the Ninth centuries, but they were soon absorbed, or entirely eliminated, by the more refreshing and less effeminate inspirations from Italy, Germany and the Mediterranean countries.

## CHAPTER VI

### ROMANESQUE FURNITURE

#### Causes of Romanesque Style

In the beginning of the Christian period, definitely about the Third and Fourth centuries after Christ, comes a marked change in the style and make of all the furniture used by both the eastern and western peoples of Europe. The eastern peoples adopted what is known as the Byzantine style of arts, crafts and architecture, while the western peoples gradually swung their arts into a style known as the Romanesque. The student of furniture will find, as he progresses beyond this period, that furniture becomes more closely allied with the architectural styles of the times and with the particular activities of the peoples. This application of furniture to the prevailing style of architecture and to the living conditions of the people using it, may rightly be said to have begun in the early Byzantine period, or about the time of Constantine I, but in western Europe this evolution received its most notable impetus during the first millennium of the Christian era. If the reader, on the other hand, will study the furniture of Egypt, Greece, Persia and early Rome he will find a close similarity in both form and style, the principal difference being in its decorative enrichment, which usually depicted the customs and manners of each country.

#### Forerunner of Gothic

The word "Romanesque" is a broad term adopted by archeologists during the early Nineteenth century to distinguish the so-called "round arch" Christian style of architecture, which up to that time had been known by various Roman and Byzantine terms. No definite date can be set for the adoption either in building or in the making of furniture of the Romanesque. In fact, furniture



bearing this name has been given so little consideration that many writers on the general subject of furniture have omitted mentioning it altogether, notwithstanding that many exquisite examples of the pure Romanesque have been made known to us from actual pieces and from illustrations. It is evident, however, that the Romanesque style found its inception about the time of Charlemagne, during the Eighth and Ninth centuries, and came to its utmost fruition about the Twelfth century, when it was superseded by the Gothic. It is quite generally contended by many authorities that the Romanesque formed a groundwork for the Gothic, which was the greatest contribution of the Middle Ages to the arts and crafts of our present civilization.

## **Not a Roman Style**

The term Romanesque is frequently considered to denote a form of Roman art, or influence. The fact is that the word "Romanesque" is as misleading as is the term "Gothic." Romanesque furniture, for instance, is no more like the classical Roman furniture than Gothic architecture can be said to be Germanic. Each country had its own and distinct type of Romanesque furniture. Northern Italy had the Lombard Romanesque. There was also Byzantine Romanesque, of which the church of St. Mark at Venice, with its furniture, is the best example. There are distinct types of French, German, English and even Scandinavian Romanesque, in which there is little or no trace of Roman classical thought. While this furniture may have been shaped along the general lines of Greek or Roman furniture architecture, it represented both in style and decoration the artistic instinct of its localized designers and craftsmen.

## **Furniture Made by Churchmen**

The most interesting contribution of the Romanesque period to the furniture arts is the ecclesiastical influence it invoked and which obtains in refined and cultured furniture to this day. It must be remembered that furniture during the first millennium of the Christian period was made largely for churches and cathedrals. In fact, the best furniture designers and makers were monks and spiritually-minded workmen. Furniture other than chests, coffers, crude beds, tables and chairs, was not in general

household use until well along in the Fourteenth century, and then only by kings and their royal kindred. The desire to enrich furniture for purposes of worship was a holdover from the earliest periods of eastern civilization, when all that man could make beautiful and attractive went into his temples.

### **Sovereignty of Oak**

It may be fitting at this juncture to point out that most Romanesque furniture was made of oak. While it is true that Europe abounded with oak forests, it is significant that until the coming of the Christian era the oak was worshipped as a deity by nearly all the barbarian peoples of the European continent. Hence, it was but a short step from the oak forest to the sanctity of the cathedral, where the oak was again installed as a companion of worship. It is from this almost forgotten tradition that oak received its well-earned appellation of "sovereign of woods," and while, of late, it has been held in the background by more fanciful and colorful woods, it will always remain the most comfortable and enduring material from which furniture can be made.

### **Carving and Inlay**

Wood-turning and wood-carving as applied generally to furniture construction received its first and most permanent impetus during the Romanesque period. While the earlier Greek and Roman furniture contained some beautifully carved specimens, the number of such pieces must have been relatively small. Beaded and pattern carving begins to appear early on Romanesque furniture, particularly on chests and cupboards. We also find relatively crude attempts at inlays, mostly of Mosaic patterns, in furniture dated as early as the Tenth century.

### **Prevalence of Arch, Gables and Mounts**

In form and decoration, Romanesque furniture may be distinguished by the prevalence of the arch, supported or flanked by turned posts and spool work; by gable-roofed tops on chests, cupboards and what we now call "high-boys," and by a profuse amount of heavy patterns or geometrical carving. Bronze or iron hinges were frequently spread out over the whole surface of a door

Some pieces, notably chests, were entirely covered by sheeting of iron or brass, fancifully ornate. Heavy iron mounts appear on this type of furniture, doors and drawers, having large animal heads of metal with rings in their mouths to serve as handles.

### **Beginning of the Chest**

The obvious reason for the development of the chest over this period was the restlessness of the times and the need of security for valuables and clothing. Some of the chests and cupboards of Romanesque design could hardly find a place in a modern apartment living room. Many of them could accommodate two or three persons for purposes of hiding. In fact, medieval history tells us of kings, queens and princes who were saved from the hand of the assassin by being kept for days in one of these receptacles.

### **Chairs of the Period**

The first chairs made entirely of turned posts appear in the Eleventh and Twelfth centuries. Some of these chairs were triangular, some had high arms, some low and others had no arms at all. Counterparts of these chairs may be found in some of our modern hickory work, except that where now the natural tree is used it was then carefully turned and securely joined.

### **Influence of the East**

The Romanesque period made still another contribution to the designing, making and improvement upon furniture in the opportunity it offered for the development of genius. Many artists and artisans during the turmoils of Byzantium found refuge and asylum at the courts of the semi-barbarous rulers of the western European countries. Charlemagne is said to have made extraordinary inducements to "designers and workers in wood" to leave Constantinople and take up their arts and crafts in western Europe. It is to the everlasting credit of these illiterate monarchs that notwithstanding their intrigues and barbarousness, they encouraged every effort toward the spreading of enlightenment in their domains. It was their artists and workers who infused into the decaying Roman culture fresh and virile ideas of their own in the designing and making of furniture. It is doubtful if furniture would

have enjoyed its present high position in the arts and crafts of civilization if these same barbarians had not revolutionized Roman customs and made living more comfortable in the climatically less temperate zones. Likewise, they enlivened furniture with their own conception of what was attractive and pleasing.

### **Images and Figures**

Early Romanesque furniture, for instance, was often covered with images and figures standing under the curved arches, which signified the intense spirituality of the times. In the German and Scandinavian countries, furniture was embellished with the heads and claws of animals, and considering the time and the primitive conditions under which people lived, these ornaments were produced with notable skill. Spain began early in the Romanesque period to develop the romance and dreaminess of its furniture and the color harmony for which it now is renowned.

### **All Furniture Painted**

All, or nearly all, furniture which was built during the Middle Ages was colored or painted. This penchant for color was partly inherited from the Greek and Roman arts and partly derived from the brilliance of churches and cathedrals. Romanesque furniture received also a baptism of color from the Byzantine styles, which, while they did not generally influence European furniture after the Tenth century, gave it much of the color it otherwise may not have had.

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## **CHAPTER VII**

### **GOTHIC FURNITURE**

#### **Gothic Medieval Period**

We have now reached a period in the discussion of furniture which stands apart and by itself in all the centuries that furniture has been in use by civilized and semi-civilized peoples. It is a period which can be understood best by those who, through reading and study, have been made aware of the conditions leading up to and following it. That period is known as the Medieval, or the Middle Ages. It is in reality the period which separates

the ancient from the modern times and is generally designated as the thousand years between the Fifth and the Fifteenth centuries. No exact segregation can be made of such a period. Until within recent years the Middle Ages were regarded as a dark and stormy stretch of time, productive of little or no good to the cause of civilization. Mankind, to be sure, stagnated under oppressions and depressions, under the rule of the sword and under cruel and relentless leaders. What little inspiration came to the souls of men was in the form of monastic dreams and childish superstitions. It was in this epoch that feudalism, conceived first by the earliest settlers in the Mesopotamian valley, long before the days of Abraham, received its final test and was discarded by society as an impossible form of political procedure.

But we have learned that all was not dark in the Middle Ages. In fact, we know now that not a century has passed in the story of man upon this earth that has not contributed something to his ultimate understanding and happiness. Unseen forces, destructive and constructive, were at work during these so-called dark centuries. There was a period shortly after the fall of Rome when those who lived at that time must have thought that the world was bent upon its own destruction. Then about the Tenth century there began a gradual and steady rise of thought which continues to this day.

### Reconstruction of the Home

One of the contributions of the Middle Ages was the inspiration for the home as we know it today. Bright and colorful as was the civilization of Asia, beautiful and inspiring as was that of classic Greece, powerful and militant as was that of Rome, they lacked the constancy upon which all human progress has been builded. Where there is no constancy there is no love, no warmth, no intimacy, no dependability. People had no place in which they could develop themselves, no place where they could dwell with one another. Their lives were dictated by autocratic rulers, their tastes and judgment by theologians and their characters, as in Greece, by law. To be sure, there were splendid palaces in Babylon and Egypt and romantic villas in Rome, but they were not homes. They were but pretentious monuments to wealth and the wealthy alone do not make civilization. Our civilization was made by the great numbers, the many who sow and reap, who

build and forge, who buy and sell. Civilization has its root in the soul, and the soul, like the body, must have a place to find itself. That place is what we call home.

### **Period of Fear**

But even the homes of the rich and the mighty decayed during the Middle Ages. They lost what little home atmosphere they once had and became fortresses and robber roosts. The more people could hide, the safer and happier they thought they were. Hence, the Medieval stockade and the moat around the castle. There was no open door. You passed into this unhappy home over a drawbridge and you raised both hands to prove that you did not carry weapons.

Everything that is born comes from suffering. The finer the organism, the more it gives to the life it produces. And so with our civilization. It had to suffer to give forth its best fruit. Like a suffering human being, the home, such as it was, had to go to the depths to find its most inspiring and enduring ideals. It had to begin over again among the many, not the few, who had to have homes before they could find themselves.

### **Coming of New Strength**

But in the history of Europe, from which we pattern our home and much of its contents, there were other factors working besides destruction and disintegration. The Roman Empire decayed of itself. It could not subsist on its wealth, on its military power, on the games in the amphitheaters or under the rule of its dissolute emperors. The red blood of Rome had turned white from dissipation, lethargy and lack of moral strength. But north of Rome, from the rocky coast of Wales to the Danube and the Volga and on up to the Arctic circle, lived races of men who were strong, virile and red-blooded and in whose rugged and barbaric concept of life there was an even finer home instinct than had ever manifested itself among either the Latins or the Greeks. Roaming tribes though they were, whose only economic achievement was a crude form of agriculture, they pressed against the Roman boundaries for food and for a chance to better their conditions. Finally the barrier along the Rhine gave way and there was a sudden mingling of the barbaric and the cultured,

the one supplying a renewed life to the dying, the other a new civilization for the living.

### **From Chaos to Order**

The result for centuries was chaos. All that steadied the gropings and the struggles of this commingling of races and peoples was a new faith, a new code of morals, a new plan of human relationships. That was Christianity. New, both to Roman and barbarian, they had different concepts of it. For a long time, almost a thousand years, it seemed doubtful if the faith would survive. But it did. Out of that struggle the home was born, the home we know today. Contributing to this home was the love of the barbarian for his family circle and his respect for that of others, the arts and culture of Greece and Rome and the Christian church. Truly no institution conceived by the hand of man could have a better or a safer foundation.

### **Activities of the Times**

The historians writing on the Middle Ages generally divide the period into epochs. From the standpoint of the home and the arts and crafts entering into home furniture and furnishings, these may be said to include a period of readjustment following closely upon the fall of the Roman Empire in the Fourth century. The Romanesque, begins in the Seventh and Eighth centuries and continues to the Twelfth; the Gothic, from the Twelfth to the birth of the Renaissance in the Fifteenth. Of the period of readjustment we know very little. That there was a sudden decline in all the arts and crafts is evident by the fact that nothing remains from this period to tell us what transpired. No doubt, the better classes continued to live much as the Romans lived, when and where their property was spared by the conquering northern tribes. Slavery seems to have been abandoned early, with feudalism ready to re-enslave the poor under another name. Hence, we could not hope to find the average home more than a hovel, as in those times the comforts we now expect on the lowest rung of the social ladder were unknown. Likewise, during the Romanesque period, the furniture of which was described in the last chapter, the social order was low, perhaps the lowest during all of the Medieval centuries. In Spain, due to its equitable climate



and to the Moorish influence, there was little change in the manner of living of either the rich or the poor. North of the Pyrenees, however, came a new wave of political and social activities. France and much of Germany were ruled over by a succession of brutal and fanatical kings or overlords who were ever at war with one another, with their subjects or with the church. The common people, during this epoch had little or no identity. They had thrown themselves helplessly upon their feudal chiefs, who in turn bartered their followings among dukes and princes. Hence, there was no development of the home and consequently no departures in the furniture arts. This condition continued until the close of the Eleventh and the beginning of the Twelfth centuries. Kingdoms and petty dukedoms were constantly at war, and no time or thought was given for orderly expression of the arts and crafts.

### **Gothic Distinctly a Spiritual Style**

The first evidences of a revival of independent thought and of a desire to give expression to beautiful things came in the Twelfth century. But it did not come to the home. It came to and through the church. Like the birth of civilization itself, the new day had to dawn in the temples which man has ever built to his gods.\* Strange as it may seem, with all of man's weaknesses, his first concern has always been for his gods. Babylon had a magnificent temple covering acres of ground long before those who worshipped in that temple lived in anything but clay huts. And so, toward the close of the Medieval storms, Europe began to build to its God. And here we come to the greatest contribution of the Middle Ages and probably one of the greatest of all times—the Gothic form of architecture and art.

### **Rich in Permanent Beauty**

While there is little that may be called Gothic furniture, the period itself, that is the centuries between the coming of the Gothic and the Renaissance, was rich in inspiration for furniture adornment. The later blooming of all arts retained the imprint of the sacerdotal beauty which was born during the Gothic centuries. To this day

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\* The latest and most exhaustive work on this subject is contained in a book entitled "Worship in Wood," by Thomas M. Boyd, published by The American Seating Company, Chicago



really beautiful furniture carries the spirit of this epoch. And there is a marked reason for this. The churches were the main channels of art and the highest expression of craftsmanship. Artists and artisans labored for years on a single altar, pulpit or rood screen. Carvings, unequalled in beauty, were lavished upon the woodwork in the church. These were later copied into furniture. With the return of civilized conditions among the people there was a demand for a transplantation of church beauty in the home. Like the Greeks of old, the awakening European wanted to be as nearly as possible like his God, and to surround himself with an atmosphere in which he knew or believed his God would feel at home. This was the dawn of a still greater awakening, the bursting of a great sun upon a long period of darkness and despair. The racial and economic readjustments were coming to an end. Mankind had suffered as life must suffer before it can produce other life. Back of the night was a great light ready and seemingly eager to spread its rays over a weary and groping world. It was the Renaissance.

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## CHAPTER VIII

### FURNITURE OF THE RENAISSANCE

#### **Receding of the Darkness**

This world of ours has undergone many changes. Even within the memory of a generation has land replaced water and water the land. Within the time that human beings have occupied the earth, parts of Europe and America have been covered with enormous sheets—veritable mountains—of ice. These periods were called glaciations. In the history of man and in the manner in which people have lived there have likewise been many and great changes. The intellectual and spiritual darkness discussed in the last chapter was one of them. Like the glaciers ages ago, this darkness crept over all of Europe with the decay of the Roman Empire and receded, like the glaciers, toward the beginning of the Fifteenth century. This recession, called the Renaissance, which means "rebirth" or "awakening," began in Italy and spread with amazing rapidity throughout all of Southern Europe, Germany, Scandinavia and the British Islands.

## **Improved Economic Conditions**

The coming of the Renaissance was due primarily to an improved economic condition of the people in the free cities of Italy. Among these cities were Florence, Milan, Venice and Naples. From them it spread to Vienna, Paris, Berlin, Hamburg, Brussels, Christiania, London, cities in Sweden and Norway and down into Madrid, Cordova and Barcelona, in Spain. It was a rebirth of the Greek and Roman arts which flowered in the days of Pericles and Augustus and a return of the culture, in modified form, which lent color to the ancient civilizations of the Eastern and Roman world.

## **Inspired by Writers, Artists, Poets**

Inspired artists, writers, poets, among whom we recognize Michelangelo, Raphael, Boccaccio, Petrarch, appear in this period. Their work attracted not only public attention, but like the Greek teachers of old they established schools of design, style and thought. They had pupils who followed in their footsteps, or departed from their examples, thus setting up comparative standards in different countries and in keeping with differing thoughts and tastes. Public interest was aroused in paintings, sculpture, furniture, church building and enrichment, literature, law and government. A new social and political order was born. The people wanted more to say about their own ideas and more to do to make life happier and more comfortable. The foundation was laid for a more representative form of government.

## **Betterment of Social Conditions**

For centuries Europe had been torn by wars between petty kings and counts, by religious wars and struggles for possessions and power. The numerous principalities, marquisates, kingdoms, ducal fiefs and feudal units were being drawn together into the semblance of nations with more orderly governments and more equitable laws. Superstition and fanaticism waned. The church became more effectively separated from the state, and rulers became more interested in their own people than in the ownership of vast domains. Cities were beautified and became more orderly in their development. The feudal stockade and medieval castle gave way to open streets and sidewalks.

Robbery ceased to be legalized and the state recognized that it owed protection to its subjects. Life and private property enhanced in value and in right. All of which added to a universal betterment of social conditions and the desire to improve those conditions for the enjoyment of a greater number.

## A Comparison of Times

The most distinct contribution of the Renaissance period was in the betterment of the home. One reason why there is so little to be learned about furniture between the Fifth and Fifteenth centuries is that there was little furniture about which to know. To give the reader somewhat of an idea of the utter wretchedness of the Middle Ages, it is said that a king named Arnold, in the early years of the Tenth century, died from "lousiness." This is an indelicate term, but it is used as the historian of the time used it in his chronology of events. If a king could die of so foul a disorder, what must have been the condition of his subjects! What must have been the condition of the home?

## Variety of Artistic Viewpoints

Before we attempt to analyze the furniture of the Renaissance, however, and its use in the home, it should be noted that particularly as applied to furniture, the Renaissance was something more than merely the bringing back of the Greek and Roman arts. While generally accredited to Italy, this awakening was not only general in all of Europe, but its expression varied, almost radically, in different countries. Had it not differed, the Renaissance would have become merely a vehicle on which might have been returned a poor copy of the classic arts. This difference consisted in the variation of thought in the several countries and among their peoples.

For instance, in the northern countries, the chairs, tables and other pieces of furniture expressed something of the vastness of the great forests, the *drakships*, and extreme conceptions of monsters with which Norse mythology abounds. In Germany the furniture was massive, heavily turned, the tables having mammoth legs and the beds massively timbered frames. That expressed the early German's idea of art. In Spain the Renaissance modified the already established Moorish influence upon the arts and

upon furniture. In France, Renaissance furniture showed a profusion of fine and elaborate carvings. In Holland and Flanders furniture was large, heavily carved and contained many foreign influences, due to the seafaring activities of the Dutch and Flemish peoples. English Renaissance furniture was in both design and decoration a modification of the Renaissance furniture of Flanders and North Germany. England retained longer than France her rough and somewhat lumbery furniture, but toward the late Renaissance there is a marked individuality in English furniture which readily designates it as a product of this period.

### **Recognition of the Cabinetmaker**

In all this furniture, as designed and made in different countries in Europe during the Renaissance period, there is an expression of the taste and concept of the people by whom and for whom it was made. In the making of this furniture practically all of the fine arts and crafts were employed, such as painting, sculpture, carving, turning, inlay, overlay and marquetry. In times and in places, the silversmith was as necessary in the making of a piece of furniture as was the carver and the cabinetmaker. Wood, metal, stone, precious gems, cloth, leather and even fresh flowers and plants were brought into play and by treatment, skill and labor found their way into furniture. The soul of the artist and artisan, freed from centuries of social and political bondage, soared to the heights in the fantasies of design and adornment of furniture until the cost of the finished product made the better kinds of furniture prohibitive to all but the rich. Furniture designers and makers became patronized by kings and queens, by the nobility and later by rich burghers. To be "cabinetmaker to his majesty the king" was an honor which to this very day is ardently coveted in countries in Europe which still cling to their sovereign heads. It is from this period that we derive many of our richest and most inspiring designs for domestic furniture, and while later furniture, in France and England, was more noticeably refined, it is seldom we find a more beautiful room than that furnished in the late Italian, Spanish or French Renaissance.

## Four Distinct Classifications

It was the foregoing conditions, circumstances and causes that established four major styles of furniture in the Renaissance period. These are the Italian (early and late), Spanish, French and Dutch-Flemish. Supplementing these are minor Renaissance conceptions in the German, Scandinavian and English, which are, in reality, modifications of the former major styles. Within these major periods are localized departures in both design and ornamentation of furniture. In the Italian Renaissance, for instance, we find a distinction in the Florentine and Venetian furniture, and similar distinctions in the furniture made in Amsterdam and Brussels, though generally conforming to a common school in both design and decoration. In all these expressions of the arts, in their application to furniture, there is a marked adherence in symmetry and design, or to be more explicit, in the architectural concept of furniture, to the Greek classical law of proportion. Wherever this law is violated or ignored, there is a marked confusion in the result.

## Italian Classical Distinction

In this respect the Italian Renaissance is, perhaps, more true to the classical Greek than is the furniture of any other Renaissance adaptation. No less a modern authority than George Leland Hunter boldly states in his "Decorative Furniture," that "personally, I prefer the furniture of the Italian Renaissance to that of any other period." Likewise, the great furniture designers of France under the Bourbon kings, Chippendale and the Adam brothers in England and the American Duncan Phyfe held basically to the classical proportions in the designing of their furniture. The same is generally true with the decoration of furniture. The acanthus leaf, softened and refined, is still Greek from within. The fleur-de-lis is still a Greek conception of the perfect, conventional flower. The flowers or fruit on some of the most beautiful of the late Renaissance panels may be traced to the ancient Greek altars in Athens, Corinth and Elis. Thus, the Renaissance retained much of the original beauty and order of its classical examples, which from the standpoint of completeness, have not as yet been excelled.

## Decorative Motifs

Intermingled with this classical thought there is expressed in early Renaissance furniture a deep religious feeling, derived from the ecclesiastic influences which still lingered in all artistic expression from the Fifteenth to the Eighteenth centuries. This is particularly evidenced in occasional Gothic tracery in furniture decoration, in the decorative use of biblical and ecclesiastical characters and in paintings of ceremonial investitures, which found their way into the furniture of the earlier Renaissance periods in all countries. These influences are gradually replaced by lighter and, perhaps, more material representations. Pictures of the dance and of merriment, festoons of leaves and flowers, views of hillsides, windmills and of whole cities appear on painted furniture. Historical scenes are transplanted on the panels of chests, beds and cupboards. Rich inlays on Dutch and Flemish furniture of scenes in China, India and other foreign countries abound on the products of this period, sometimes humorously so because of their inconsistencies. All of the Renaissance points to the development of opportunity, of the "awakening" or "rebirth," as the term implies.

## Italian Renaissance

If we include the Venetian painted furniture which made its appearance early in the Eighteenth century, it may safely be said that nearly all good furniture, of classical proportion and enrichment, finds something of its source in the Italian Renaissance. Italy was at all events the first to produce a definite post-Roman style in home furnishings of culture and refinement and in that style held basically to the architectural laws of classic design.

## Based on the Classical

Both the early and late Italian Renaissance furniture had something of the glory that was Greece and the grandeur that was Rome. It was formal and palatial rather than comfortable, warm and homelike. It was designed for beauty rather than utility. It had a substantial solidity without being cumbersome and its decorative enrichment was well within the requirements of the purpose and places for which the furniture was de-

signed. It was not until more than two centuries after the Renaissance had reached its full bloom in Italy that furniture in France, Northern Europe, Spain and even in Italy itself became overburdened with decoration.

## **Description of Form**

Italian Renaissance furniture was low and straight, the legs sometimes rectangular, sometimes turned. Arms and backs of chairs were squared, the latter extending straight from the floor. In some examples, the arms end with a rounded scroll and the legs in paw or block feet. In others the legs go straight to the floor without terminal embellishment.

The Italian Renaissance finds its best expression in chests of unsurpassed beauty and adornment. The chest being at that time an article of pronounced usefulness as well as an ornament, it received, perhaps, more thought and time in the mind and at the hands of the artist and craftsman. Other articles were tables, chairs, armories or cabinets used for storing things of value and dressoirs for displaying food or plate. All represented a wide range of artistic thought and care and skill in construction. From an inspirational standpoint and for what it contributed to the furniture arts, the Italian Renaissance was one of the most brilliant furniture periods known to modern and semi-modern times. Its duration may liberally be designated as beginning about the middle of the Fifteenth century and continuing on toward the Eighteenth. Many changes came into the original style, all of which are known from their sources and causes and too numerous to include in anything but a technical study of furniture design and construction.

## **Political and Religious Influences**

The political history of Europe, after the fall of Rome and during the Gothic and Renaissance periods, brought France and Italy, and in fact all the continental countries, in close contact. In addition to their own political vicissitudes, they were allied in a semi-political and spiritual union in what was called the Holy Roman Empire and in a network of feudal relationships. Gatherings of the nobility (which were then the only users of furniture) for peace or war, in diets and ecclesiastical conferences; changing inheritances of dukedoms and kingdoms, and



political upheavals resulting from the rule of conflicting authorities, formed a restless caravan upon which the furniture arts found their way through the west and north of Europe.

It is natural, therefore, inasmuch as the center of all religious and political activity was then in Rome, that the influence of Italian Renaissance furniture should spread among the better classes of furniture users of Europe. With the establishment, however, of stronger national boundaries, the political arenas shifted to France and Spain and almost at the same time to the Germanic countries and England.

### **French Renaissance**

France, therefore, was the first to absorb the influences of the Italian Renaissance and apply them with her own changes and alterations to the making of furniture. The first evidence of this application comes in the reigns of Charles VIII, Louis XII and Francois I, and in a more marked instance of the queens of the house of Medici, which was originally of Italian derivation. The northern provinces were slow in adopting the Renaissance styles, which in Italy and later in southern France were largely in walnut and in the finer cabinet woods. The northern countries liked their oak furniture, which they had inherited from the Gothic period, in fact, from their earliest barbarian ancestors, to whom the oak was a sacred tree.

### **Origin and Development**

Gradually, however, practically all of France accepted the Renaissance thought and evolved at the time of Francois I, 1515 to 1547, a combination of Italian and French furniture which was Gothic in construction and Italian in decoration. This was largely of oak and consisted of chests, dressoirs, settees, credences, etc., with panels, pilasters, cornices, arabesques, profile carving and other types of Italian ornament. From this the French Renaissance, sometimes called late Gothic, grew into its complete development and into what is known as Late French Renaissance, which ended with the reign of Louis XIII. The subsequent Medicis, beginning with the queen mother, Maria, regent for Louis XIII, who introduced a Florentine influence in French furniture, encouraged the manufacture of magnificent inlaid cabinets, profusely



carved reliefs in oak and walnut, incised flowers and twisted pilasters and generally set the stage for the Baroque style, which obtained quite generally in Europe during the middle of the Seventeenth century.

Possessed with even a smattering knowledge of the conditions of these times and conscious of the unsettled political status of France, the reader can better understand why French Renaissance furniture bore a close resemblance to that of Italy. It has the same architectural strength, though far more elaborately adorned. The pediment top of cabinets is one of the distinguishing details of French Renaissance furniture, and to this may be added the structural carved supports. Inlays of stone, especially marble, is one of the ornamental features of this period, and while nearly every known form of decorative enrichment was used, the splendor of French Renaissance furniture was largely in its exquisite carving, and in the result of the infinite pains taken by the craftsmen.

### **Spanish Renaissance**

The development of Renaissance furniture in Spain was contemporaneous with that of France. In Spain we find a further proof that furniture is a faithful reflection of the thoughts and concepts of the people who make and use it. The history of Spain, from the Fifth to the Fifteenth century, is one of upheavals and confusions, of racial and political struggles and of ecclesiastical and temporal storms. In the Fifth century Spain was overrun by the northern barbarians, who flooded all of southern Europe. In the Eighth century, when torn and wearied after long struggles with her northern foes, Spain yielded to a feeble attack of the Mohammedan Moors from northern Africa. This was the beginning of a Mohammedan rule in Spain, which continued with short periods of intermission for nearly eight centuries, or until 1502, when the invaders were expelled. Arabs, Syrians and Berbers fought the natives and among themselves until about the end of the Eleventh century, when some semblance of order was restored along the lines of European political organization.

Even before Spain had been relieved of the Mohammedan yoke the Northmen began pressing down the western coast of Europe, and through France exerted somewhat of a Gothic influence upon the arts and crafts of that country. All these upheavals, polyglot populations and race struggles left a distinct mark upon the Spanish

arts, which to this day influences the furniture we call "Spanish." It is quite generally termed "Romantic" and verily deserves the title.

### French and Moorish Influence

In the northern part of Spain, therefore, Renaissance furniture was influenced by that of France and in the southern part by the Moorish arts. One of the most interesting contributions of Southern Spain to the furniture arts was the writing cabinet, or *vargueno*, consisting of a box with one side opening forward, which could be lowered for writing and closed when the desk was not in use. After the folding stool it may truthfully be said that the *vargueno* was the parent of the many appearing and disappearing furniture contraptions of our time. These cabinets abounded in graceful metal work, enriched by handles and escutcheons, inlays and band work.

### Decorative Features

The finest Spanish Renaissance furniture appears from 1500 to 1650. This period embraced the reign of Charles V, who is said to have ruled over more territory than the Roman Caesars, governing besides Spain, Germany, Austria, The Netherlands and Italy. The style is broadly influenced by the Gothic and is rich in dignity and decoration. Leather figures conspicuously in seats and iron work in underbracing, details which seem to have been introduced by the Moors. The general lines of the furniture were straight, with contrasting curves. Chair legs were straight, grooved, carved and baluster or spiral turned. Scroll, turned or claw feet adorned the legs of tables and chairs. Imposing metal mounts, gilt large-headed nails and much gold embroidery are found on this type of Spanish furniture. Inlaying in bone, brass, silver, tortoise shell and Moorish design in arabesque patterns are a part of the decoration of Spanish Renaissance furniture, usually presenting motifs of birds, urns, plants, flowers, saints and ecclesiastical subject matter.

### Eloquent in Color and Beauty

While Spanish furniture would usually call for a distinct Spanish setting, its use in recent years has been increasing. Modern technique has found it possible to create

furniture of Spanish design and fit it into any home. Eloquent in its color and quaint beauty, it tells one of the most graphic stories that has ever been portrayed by any art or by the skill and taste of craftsmen.

## **Dutch and Flemish Renaissance**

While Renaissance furniture was being created out of the political intrigues of France and out of struggle and chaos in Spain, a different influence manifested itself in its development in Holland and Flanders. Both of these countries having for many years been under the influence of Spain and to a great extent of French products and needs, the furniture arts received in these countries a full benediction of the Renaissance drift. But the thrifty Dutch and Flemish people were not so much concerned about the tastes of their political protectorates as about the business of making furniture. They were the first real merchandisers of furniture in western Europe, which is proven by the amount of Dutch and Flemish furniture which found its way into England, Germany and the Scandinavian countries. In 1581 Holland separated from Spain and became an independent country, withdrawing at the same time from much of the Spanish which had influenced her art. Here the Dutch and Flemish styles of furniture also separate, Holland developing her own individual styles and Flanders taking on more of the French. For practical purposes, however, Dutch and Flemish Renaissance furniture is generally regarded as contemporaneous and has much in common. It receives and imparts more of the art influences of the time than the furniture of any other nation or people. It took from Spain, France, Germany, Italy and the Orient and gave to England and America, at the same time returning to those from whom it had borrowed.

## **Structure and Decoration**

Being essentially home-loving people, the Dutch and Flemish introduced many of the practical and utilitarian qualities into furniture. While much of it is beautiful and stately, it is heavy, bulky and inferior to the Renaissance styles of other countries. Heavy turned legs, with deep carving, floral designs, profuse inlay are characteristic of this type. Cabriole curves are abundant and spiral turning of large proportions gives the style a massive and

somewhat rigid appearance. The Dutch were the originators of the high-backed chair which later became so popular in England during the period of Queen Anne.

Flemish Renaissance furniture is heavily carved, the cabinets being built up with columns, heavy friezes, cornices and rich architectural details. Something of the Spanish is found in the early chairs which later became more "Frenchy," due, no doubt, to the increasing trade demands of the southern neighbors.

### **German Renaissance**

In Germany political trends and neighboring countries likewise influenced the furniture arts during the Renaissance period. Nearly all of what is known as German Renaissance furniture is made of oak, rich in carving and intarsia. While the political history of Germany during the Middle Ages is not as chaotic as that of Spain, or as turbulent as that of France, the country was divided between provincial rulers and petty kings, some of whom were not natives of the country and foreign to its tastes. This notwithstanding, Germany held long and fast to the Gothic principles of construction in furniture and in its decoration. This furniture is particularly renowned for its carving, an art in which the Germans excelled. Fine, flat convolutions, foliated ornament, medallions, heads, figures, reliefs and the picturization of scenes, mostly from the Scriptures, abound in the decoration of German Renaissance furniture. It is also heavy and massive and was apparently built to remain where it was first placed.

## **CHAPTER IX.**

### **FURNITURE OF ENGLAND**

#### **Distinctiveness of English Art**

Although separated from continental Europe by a strip of water no larger than can be crossed by a swimmer, the story leading up to the understanding of English furniture differs radically from that from which we derive our knowledge of furniture of Europe, Northern Africa and Western Asia. While influenced by the traditions of these countries, English art, English custom and English furniture are distinct as understood and expressed by the English people. For more than 2,500 years, England or

Britain, as the country was originally called, has taken from the civilized world and returned in her own kind. Like Rome, she is known for her powers of conversion, of remaking, and the records show that for the most part she has improved and established that which has been given her with which to do. "Wherever the descendants of the Saxon race have gone," says Dickens, "have sailed, or otherwise made their way, even to the remotest regions of the world, they have been patient, persevering, never to be broken in spirit, never to be turned aside from enterprises on which they have resolved. . . . Wheresoever that race goes, there law and industry, safety for life and property, and all the great results of steady perseverance, are certain to arise." The furniture of such people must express corresponding virtues. It must represent not only modern taste, but a traditional idealism. English furniture does this. Regardless of where you find it, it cannot be too rich, too magnificent, too imposing, because it would disturb that majesty of calmness so inherent in the English. Likewise, you will find, in the humblest English home, furniture which speaks eloquently of a culture loving race, of a people with an eye to and appreciation of refinement, of proportion and of symmetry. Few periods in English furniture have been marked with extremes. Equally, there have been few periods from which something was not left posterity to copy and enjoy.

### **The Celts or Britons**

While the Egyptian and Mesopotamian arts were in the last stages of decay, when the shadows were lengthening over the glories of Greece and a new mistress of the world was coming into power in Italy, there lived in these islands a Celtic people called Britons. They were not, as has often been pictured, "blue painted savages rushing about the country in wicker chariots." That they had furniture we do not know, but we do know that they had a highly developed knowledge of design, pottery, weaving and were makers and decorators of enamel ware. The people lived in cities, often separated by dense forests, and although their Druidical cults may have been incompatible with our sense of fitness, they seemed to have possessed a generous sprinkling of artistic thought.

## **European Invasion**

It was this type of people that Julius Caesar conquered on the eve of the Christian era. England then became a Roman principality, adopted Roman customs, built Roman homes and enjoyed, no doubt, the same artistry in furniture equipment and decoration that was found in most or all European countries under Roman rule. With the decay of Rome, however, England was early left to shift for herself. For centuries her fields, and cities, moors and plains, were the battle grounds of contending petty kings and northern European invaders, until 1066, when William the Conqueror, Duke of Normandy, established, through conquest, a permanent order of Anglo-Saxon development.

## **Struggle for Freedom and Supremacy**

It should be observed, however, by the student of furniture that England's struggles differed from those of the people of continental Europe in that throughout all her history her product retained an individuality that finally found its outlet in the freedom of the individual himself. Spain fought against the Moors, but once rid of the Moors, the Spanish people were even more enslaved to their own kings and rulers. Italy sought to be independent of the Holy Roman emperors, but her people were continually the serfs of overlords and dukes. The story of the German countries is practically the same. Holland gained her independence under William of Orange and that independence was quickly asserted in her arts. In England, the reaching out for freedom was inherited from the Britons, the Romanized Celts, the carefree, roaming Saxons and from the later independent Normans, whom, as an ecclesiastical writer once expressed, "no power on earth, in heaven or in hell could hold in check." With the adoption of the Great Charter, early in the Thirteenth century, under which the Englishman's home became his castle, begins a gradual development of the home arts, among which the making and using of furniture was eventually to receive a rich and lasting benediction. But it was a slow and, at times, apparently a hopeless process. It was not until the middle of the Sixteenth century that England began to awaken to her strength. "Never had the fortunes of England sunk to a lower ebb than at the moment when Elizabeth mounted the throne,"

says Green in the "Short History of the English People." The story of this remarkable woman cannot be told in this review, but with her ascendancy arose also the sun which never sets upon English rule the world over. With her began the fulfillment of the quotation by Dickens, referred to above, and with her came a period of enlightenment and knowledge which can be compared only with that of Greece during the bloom of Athens.

It was in this setting that English furniture began to take its place in the development of the art. A Renaissance, strong in English national thought, succeeded a late Tudor Gothic, derived principally from the activities of Flemish, German, and Italian artists and craftsmen. Furniture continued to be made of oak until the middle of the Seventeenth century, when walnut became an established furniture wood in England.

### Early English Culture

It must not be assumed, however, that England was entirely destitute of furniture before the coming of Elizabeth. With the advent of the Normans, there was a new advance of luxury and refinement. The more cultured continental Europe introduced into the English homes a greater number of rooms and with them more and better furniture. The houses of the landowners were called "manoir" or manor and were for the most part built of stone. The Normans brought with them armories, cupboards, clothes-presses, Romanesque or debased classic chairs and chests of early Italian and French design. Panel work and coloring, decorative historical paintings, Oriental rugs or carpets, fineries for the bed-chamber appear during the time of Henry III and Edward I. Added inspiration for interior decoration was derived from Italy and France, although it appears that much of the furniture came from Holland or Flanders or was made in England by Dutch and Flemish craftsmen.

### Renaissance in England

Edwin Foley, in his inspiring and instructive work, "The Book of Decorative Furniture," combines the Renaissance period in England under the designation "Tudor-Elizabethan," 1509-1603 and as beginning with Henry VIII and continuing through the reign of Queen Elizabeth. "The Encyclopedia of Furniture," a recent work



compiled by Dr. Herman Schmitz and edited by M. P. Shapland, states that "it was only under Elizabeth (1603-1625) that the Renaissance completely penetrated England." The American Homes Bureau's "Annual Reference Book" designates English Renaissance as "Elizabethan Period, sometimes called Tudor Style." Hence, it is safe to place the period, though under differing names and designations, as covering practically all of the Sixteenth century in England.

### **Characteristics of Renaissance**

"The characteristics of English Renaissance furniture," says Singleton, "known as Elizabethan, are carved human figures or medallions, masks, fruits, floral and chimerical animal forms, strapwork, bulbs, arabesques, nail-heads and gadroons. Sometimes the linen-fold or tracery of the style (Tudor-Gothic) accompanies the medallions of the new on the same piece of furniture. The carving, as a rule, is not so delicate as the contemporary French and Italian. Oak still predominates, but walnut is more common and marquetry of native and foreign woods is in great favor. The principal woods used in inlaying were walnut, ebony, rosewood, pear, cherry, apple, box, ash, yew and holly."

On the subject of construction of English furniture during this period, Foley writes: "One cause of the charm of old English furniture is its sturdy, simple honesty of construction. The pieces are pegged with wooden pins and innocent of screws. Had the old workmen used screws the rust of three centuries would long ere now have played havoc with many a fine old piece we still have intact."

The American Homes Bureau classifies English Renaissance as "massive, straight-line furniture of oak, with elaborately carved decoration copied from the Italian Renaissance. The Elizabethan is an interesting but rather crude style; the rich, curving Renaissance ornament is plastered over the sturdy English structure with its many lingering Gothic characteristics. It was a style for show rather than comfort.

### **Early Jacobean**

Interesting as it may be to linger in the morning glow of English furniture, history hurries to succeeding events,



bringing added changes to the furniture of the "tight little isle." Elizabeth was succeeded by King James and *Jacobus*, being the Latin for James, it also became the name of an English style of furniture that was both distinct and impressive. Though an outgrowth of Elizabethan and showing a semblance of relationship, it was less grandiose, smaller and with a more evenly distributed ornamentation. To guard against confusion in any analysis of Jacobean furniture, it should be observed that the term covers three almost distinct periods, namely, Early Jacobean, 1603 to 1649; Cromwellian, sometimes called Puritan, 1649 to 1660; and late Jacobean, 1660 to 1689, frequently referred to as Carolean, Late Stuart or Restoration.

The Cromwellian furniture can in no way be called Jacobean as defined in the foregoing or as resembling the Late Jacobean. During the period of the Protectorate, furniture became rigidly simple, austere, straight, and somewhat cumbersome, containing withal a quaintness and no little charm.

## Late Jacobean

A complete swing to the other extreme characterized the period known as the Late Jacobean, during the reigns of Charles II and James II. The former, a mirth-loving, happy monarch, had been confined in exile in Flanders during the Cromwellian era and immediately upon his return began to liven up his country by bringing with him a taste for luxury and a liberal patronage of the arts. The furniture again became profusely decorated, showing influences of continental schools, notably those of Italy, France and Spain.

James II did not fare well with the English people and was obliged to vacate his throne in favor of his daughter Mary, who married William of Holland, who brought with him the furniture styles of his own people. The time was ripe for a change and with the encouragement of the domestic queen a lighter and more homelike style of furniture appears in England, known as William and Mary. The period is chronologically classified as between 1688 and 1702, and the furniture bearing its name is a distinct departure from previous English furniture styles. Graceful and symmetrical curves predominate, legs are turned and have inverted cups and there is a distinct grace

and slenderness of form. It is a type of furniture which fits admirably into the modern home.

### **Queen Anne**

Following immediately upon the William and Mary period is that of Queen Anne, 1702 to 1714, when curves become more pronounced and the cabriole leg an established feature of the chair. Parallel uprights become hood-shaped and backs of chairs and couches have vase-shaped splats in the center. There is almost an entire elimination of stretchers between the legs of chairs, couches, tables and stands. The style required little carving or surface decoration. Carving was applied sparingly on structural surfaces at the juncture of the legs with the frame or on the bulbous feet. Drawers were enriched with artistic and delicate mounts.

Queen Anne furniture is distinguished by its rich veneerings and wood treatments. It is almost entirely devoid of marquetry and inlay and its beauty lies mainly in the cutting and shaping of structural wood. It came into vogue in England when the use of walnut was at its height and remained long enough to benefit by the introduction of mahogany, which had become fashionable early in the Eighteenth century. It is accredited with being the first furniture in England which combined comfort with beauty and decoration.

### **Georgian**

A style similar to that of Queen Anne and following closely upon it is called Georgian, 1714 to 1760, so named from Kings George I and II, well known in American history. This style, though more vigorous and heavy, does not contain the wealth of refinement which inhered in the furniture of the Queen Anne period. Georgian furniture was more practical for domestic purposes and bore a marked Dutch influence. While having an abundance of curves, there is a noticeable tendency toward square shapes and a return to more massiveness. There is a technical division of the style into two periods, Early and Late. The latter is distinguished largely by its noticeable departure from the Queen Anne style, but for practical purposes furniture of this period is known as Georgian.

With the Georgian period ends for a time the distinctly period styles in English furniture, that is, the naming of furniture from a definite time in history as represented

by the ruling powers. Subsequent furniture becomes more familiarly known as "styles," and named from the individuals creating them. The dark days are over and furniture shares in the added enlightenment which has always followed the freedom of the individual to create and enjoy the best in life. The Georgian period closed on the eve of a half century of glorious enrichment of the furniture arts. The fruits of that enrichment have been felt in every part of the Anglo-Saxon world where there is understanding and appreciation of the beauties of the home.

## CHAPTER X

### FURNITURE OF FRANCE BEFORE AND AFTER THE REVOLUTION

#### **Feudal System in France**

Many and varied influences have entered into the pre-eminence of France as a leader in the ethical and material refinements which have been accepted by modern society as worthy of recognition and emulation. First of all, it was in or through France that the political organization of Europe, after the fall of Rome, took place. Charlemagne, in the latter part of the Eighth and early part of the Ninth centuries, gathered the scattered ends of racial and political intrigue, joined the interests of a decadent Latin civilization to the virile activities of the semi-barbarian Germanic society which held sway in Northern and Western Europe; encouraged Christianity and was a patron of the arts. Had Charlemagne been succeeded by foresighted rulers of equal organizing ability, the whole history of Europe for the succeeding 1,000 years might have been changed. But he made the mistake of laying the foundation for a feudal system which, perfected by William the Conqueror, kept Europe in the thralldom of slavery until the Fifteenth century—a system which his successors abused and subsequent rulers capitalized at the expense of the common people.

The germ of cultural leadership sown by Charlemagne in the sensitive minds of the French was to take root and grow. But before France could present its culture for universal benefit, like all other nations and peoples who have contributed to progress, it had to suffer and bleed, almost to death. The story of France is, perhaps, the

most complete narrative of human emotion that recorded history has ever presented. Unlike the experience of England, it was not so much a struggle for individual liberty as for individual expression. But, like the story of England, that of France concerns a constant state of war on the part of the people against its rulers whose avarice and thirst for power finally precipitated the nation into one of the bloodiest revolutions of which there is any record in the annals of mankind.

### Furniture Before the Revolution

It was during the period immediately preceding the French revolution, figured roundly from the latter part of the Seventeenth to well into the Nineteenth centuries, that the most beautiful of all French furniture came into existence. It was not a general development, however, or the outgrowth of a national urge for better things. The furniture of which we shall write was made entirely for the court, for royalty, nobility and the wealthy bourgeois. In fact, it was not until well toward the end of the monarchy that the latter presumed to emulate the aristocracy in the choice of their home surroundings.

One of the latest and most authoritative sources of information on French furniture during the period in review is contained in a series of lectures delivered recently in Paris by M. Seymour de Ricci and Solomon Reinach to American students of furniture, under the auspices of New York university. To quote their preamble in a discussion of Louis XIV furniture: "The truly brilliant period from 1661 to 1691 was the first great period of centralization in the history of France—one law, one king, one art—such was the ideal of the day. \* \* \* Henry IV had already created a royal manufactory in the Louvre; Richelieu and Mazarin had called to France Italian workmen; Fouquet had discovered and employed Le Brun. But art only found its opportunities when Louis XIV started building at Versailles and Marley, regardless of expense. The king's taste for magnificence, the only form of art which he really understood, and Colbert's passion for protectionism, created in France the great *industries de luxe* which to this day form the real wealth of the country."

## **Louis XIV Furniture**

There has been much difference of opinion as to whether the arts as reflected in the furniture of Louis XIV and contemporaries were French in spirit and in fact. Courajed maintains it was the art of neither a race nor a country, but merely that of "a king and his courtiers; that it is not French, but Greco-Roman or Italian. While it would be folly to maintain that the furniture of this and subsequent periods did not contain foreign influences, it must nevertheless be credited, as in England, with a strong national spirit and temperament. Added to this the political, economic, social and religious influences peculiar to France, and we have a result as distinct as any attained in the making and beautifying of furniture before or since.

## **Influence of Italian Baroque**

The most important of all foreign influences, however, according to Reinach and Ricci, was that of Italian Baroque, due to the fact that nearly all young French students went to Rome to perfect their knowledge of art. In architecture the Baroque style finds its first expression in the church of Gesu at Rome, built by Vignola, for the Jesuits, 1658 to 1573. Baroque is a technical term, rather vaguely understood by the lay reader. According to the *Encyclopedia Britannica*, the word is of Spanish origin and was for a time confined to the craft of the jeweler. "It indicates the more extravagant fashions of design that were common in the first half of the Eighteenth century, chiefly in Italy and France, in which everything is fantastic, grotesque, florid or incongruous—irregular shapes, meaningless forms, an utter lack of restraint and simplicity. The word suggests much the same order of ideas as rococo."

## **Dictators and Creators of Louis XIV Style**

But it was not style alone that influenced the furniture of Louis XIV. The wealth and power of that monarch, the ambitions of his favorites and the subservience of his aides made it possible for him to import or educate craftsmen and designers for the production of the most costly furniture which up to that time had ever been made. Among them was Domenico Cucci, a naturalized Frenchman who worked for the king more than 40 years. Cucci's

furniture was lavishly decorated in gold and bronze, colored stones, ornaments and figures. Phillipe Caffieri, a sculptor in wood and metal, was called from Rome by Mazarin in 1660. He specialized in gilt wood furniture, lavishly ornate and richly carved.

In this period we meet with Boulle and Oppenord, both of foreign stock. Charles Andre Boulle, born in Paris 1642, is said to have been of either Swiss or Flemish origin, and Oppenord was a Dutchman who became naturalized in 1697. Both of these artists influenced the furniture of Louis XIV in a manner which cannot be called Italian, yet gave it a balance, or originality, which in the absence of any other designation must be called French.

By far the most artistic personality of the time was Charles Le Brun, who became a warm favorite of the minister, Colbert. Le Brun's influence is found in both structure and decoration of all French furniture from 1660 to 1690. Le Brun was an architect, a decorator and a designer of furniture, and in addition to these a great organizer. The son of a sculptor, he received a masterly education in the arts and was early adopted as a favorite at court, where he worked exclusively for the king and his minister, Colbert. Le Brun encouraged the study of art by sending young artists to study in Rome, Florence and Venice.

## Gobelin Manufactory

The creation during this period of the Gobelin manufactory, which has continued for nearly 300 years, was a great boon to French furniture. While the name of Gobelin has been associated with tapestry, few people are aware that practically all decorative arts were then practiced in that institution under the skillful direction of Charles Le Brun. The workshops of the Gobelins produced anything the court needed in fabrics, tapestries, metal work, carved wood, silver plate and even frescos.

It was under these masters, aided by the king's pocket-book and by the competitive ambitions of his favorites, that the furniture of his period became known as one of the most distinct styles of all times. "Louis XIV furniture is not adapted to small rooms or mediocre environments," observes George Leland Hunter, "but for large rooms and splendid backgrounds it is appropriate and adequate. Life at the court of Louis XIV and in the palace of Versailles

was on a large scale. Rooms, instead of being many and minute as a modern apartment house, were few and huge. The king and queen and all their entourage of noble lords and ladies were splendidly appareled, though lacking bathrooms and other conveniences. From a modern point of view, there was a decided lack of chairs in Louis XIV interiors. The proudest ladies of the court were obliged to stand through long receptions, and even those allowed seats by royal favor sat on uncomfortable stools and benches."

## **Louis XV Furniture**

Preceding the actual rule of Louis XV was a regency which continued for six years (1715-1721), when lighter and more graceful furniture followed the heavy patterns of Louis XIV style. This type of furniture continued in vogue for some 15 years, or until the arrival of Rocaille, or Rococo, which is the technical designation of the Louis XV style. Rococo is a disparaging nickname for Rocaille, much as the name Gothic was applied by the Italians in derision of the Gothic style. The term is based on the use of shells and rocks in a decorative scheme; a general abandonment of straight lines for curved, absence of symmetry and an extravagant use of decoration.

## **Religious, Moral and Political Freedom**

Again quoting Reinach and Ricci: "The full-blown Louis XV style enjoyed its greatest popularity about 1740. Possibly for the first time in the whole history of European art, the designer's imagination was entirely untrammelled by any rule or tradition. Such an unbridled liberty was particularly welcome at a time when polite society was throwing off fetters of every description, religious, moral and political. It thus prepared the Revolution in which these very men were to be first victims, a situation paralleled in modern Russia, where aristocrats like Tolstoi and Kropotkin opened the way to bolshevism which was about to shatter the privileges and the very existence of their class."

## **Pompadour and Du Barry**

During this period we find the influence of royal mistresses at its height. The names of Pompadour and Du



Barry are too well known to readers of both history and romance to warrant comment here. Basking in ease and voluptuousness, paid for by the heart's blood of the people of France, Louis XV and his favorites defied all moral and social tradition and expressed in the very furniture they used an abandon which could not long be tolerated in a progressive society.

"Such are the shepherds of the people;" observes Carlyle in the opening chapters of his masterful "French Revolution," "and now how fares it with the flock? With the flock, as is inevitable, it fares ill and even worse. They are not tended, they are only regularly shorn. \* \* \* Untaught, uncomforted, unfed; to pine stagnantly in thick obscuration in squalid destitution and obstruction: this is the lot of the millions."

We cite this tragic, though opportune comment, to remind the student of the loose foundations upon which the fineries of these periods were built, to explain their short life and why they have not lived in the tastes of later times. The best furniture of all times has been progressive and in keeping rather with the urge of the many than with the follies of a few. No doubt much good has been derived from French furniture of these periods, but it does not present either the artistic or physical comfort upon which we can rely and from which we can derive a balanced and orderly contact.

### **Juste-Aurelo Meissonier and Others**

Among the outstanding artists and workmen of the period and by whom Louis XV furniture was built and enriched were Juste-Aurelo Meissonnier, born in Turin. He was originally a goldsmith, but later styled himself "architect and designer to the king's cabinet." He died in 1750. Another outstanding artist was Antonio Sebastian Slodtz of Antwerp, sculptor and son-in-law of Domenico Cucci. He worked at Versailles and died in 1726.

Most of the gilt bronze mounts, ornaments and utensils at Versailles, Fontainebleau and Marley were designed and produced by Jacques Caffieri and his son Philip. Jean Frederick Oeben, German by birth, was appointed cabinet-maker to the king in 1754 and upon his death, in 1765, was succeeded by Henri Reisener, his pupil, who married his widow. Oeben, with the assistance of Duplessis, Winant and Hervieux, bronze-makers, had been working



on the king's great bureau which Reisener completed in 1769 and which is now on exhibition in the Louvre.

## Silver and Bronze Furniture

"In the reign of Louis XV," says Esther Singleton, "there was a great fancy for silver ornamentation, as well as gilded bronze; beautiful silver girandoles and lustres were made; rock crystal was also used; and the passion for the porcelain of Saxony, Sevres and Vincennes, as well as Oriental ware, did not abate in the least. Plaques were now often introduced into furniture. The tops of tables, commodes and bureaux were fitted with slabs of rare and beautifully colored marbles, as in the preceding reign; the chairs and sofas were covered in exquisite Gobelins, Beauvais and Aubusson tapestry; handsome mirrors adorned the paneled walls above the console tables; the window curtains were cut and hung in spirited and charming folds and gathered into *choux* or knots; and colors were lighter and gayer than in the days of Louis XIV. Rich and heavy reds, greens and blues gave place to pale yellow, rose, delicate green and light blue."

## The Furniture of Louis XVI

Louis XVI, grandson of Louis XV, did not share in the loose morals of his dynastic predecessors, but he did none the less share in their short-sightedness as rulers. With his charming queen, Marie Antoinette, who, it has been found, was not as child-like as she appeared to be, he preferred to spend his time with his hobbies, tinkering with locks and masonry to the more rigorous and responsible business of being a king. His retirement and natural undecisiveness finally cost him not only his crown, but his life, and the life of his family. He was the last of the Bourbon monarchs of whom it may be said that while they enriched France in the *industries de luxe*, also led it into a revolution that was inevitable and into a travail the horrors of which have not found a counterpart in history.

## Return of Greek and Roman Arts

The furniture of this period is a simplification of that of Louis XIV through a return to the more standard influences of the Greek and Roman arts. To credit it to

Louis XVI, however, is wrong, as it originated in 1754, under the regime of Madame de Pompadour mistress of Louis XV, while Louis XVI did not become king until 20 years later. Madame Du Barry, who succeeded Madame de Pompadour in the favour of Louis XV, gave this style an added impetus in the erection of her villa at Louveciennes—"a simple ground floor crowned by an Italian terrace, with a front porch, supported by four columns." This type of dwelling, similar in appearance to the home of George Washington at Mount Vernon, found immediate favor in the United States, where it was called "Colonial."

### **Pompeiiian Decoration**

The discovery of the ruins of Pompeii, in 1754, and the public interest attached thereto, had a notable effect upon the furniture of both England and continental Europe. A Roman city, with all its atmosphere—houses, furniture, decorations and arts—came suddenly into view, creating a veritable renaissance in the applied arts. The Adam brothers of England, as will be seen, adopted many Pompeiiian features both in their architectural and furniture renderings. France, however, did not immediately abandon her frilly Rococo for the more tempered examples of Roman and Greek design, nor did her designers ever copy Pompeiiian motifs in either furniture construction or decoration. The influence crept into Louis XV furniture gradually because people were weary of Rocaille curves and sought something more dignified and enduring.

### **David Roentgen and Others**

Foremost among the cabinetmakers of the Louis XVI period was David Roentgen, son of Abraham Roentgen, also a cabinetmaker. He was a master of marquetry and his mosaics rank with the finest ever produced. In 1779 Louis XVI paid 80,000 livres for a desk made by Roentgen. Furniture of excellent quality, enriched with dignified bronzes, was produced for Louis XVI by Jean-Francois Lelen, who with Roentgen was followed by Claude-Charles Saumier, one of the most skillful advocates of the Greco-Roman style. Contemporaneous with the foregoing was Martin Carlin, cabinetmaker, who in co-operation with Reisener created many fine pieces for Marie Antoinette. He was particularly noted for his use of mahogany, marquetry and Chinese lacquer. Wilhelm Bennemann, a Ger-

man, stood in high favor at the court and made several of the finest pieces of furniture ever produced for the queen. Likewise his countryman, Adam Weiss, made exquisite furniture for Marie Antoinette, of which five pieces bearing his stamp are to be found in present day collections.

### Marie Antoinette

#### Jewel Case

These artists and craftsmen produced many beautiful works of art, among which the most important is no doubt the great Marie Antoinette jewel case, now at Trianon. It is the combined work of Johann Ferdinand Schwerdfeger, Thomire, the bronze-founder, and Degault, the miniature painter. Eighteenth century furniture reached its height of beauty toward the end of the reign of Louis XV, when a more orderly classical taste had replaced the extravagances of Rocaille. Furniture during the reign of Louis XVI encouraged physical comfort more than abstract beauty, being a forerunner to a general decadence of French art as expressed in home furnishings, a decadence which early became manifest in the Directoire and Empire furniture which followed the revolution and definitely closes the distinct styles in French furniture creation.

### Directoire

#### Furniture

Preceding the last of the definite French styles in furniture was a short period during which furniture emerged from the style of Louis XVI and into the Napoleonic Egyptian-Greco-Roman known as Empire. Few examples remain to assure us of the distinctions between the Directoire style and its predecessor and successor. We know, however, that it was a reduction of the Louis XVI style to the last degree of classic lines with a leaning toward Greek expression in simple purity of form and decoration. But as Pattou and Vaughn have noted, "\* \* \* the treatment was republican rather than monarchical, evincing itself in a severer, more rectangular note featuring its ornamentation in a manner which would have been rather harsh in Louis XVI. Thus all the classical emblems were retained, but more with an idea of copying than adapting. Nevertheless, it achieved a certain livableness which cannot be attributed to the more artistocratic style it succeeded."

## **Empire Furniture**

Empire furniture, in common with all departures and evolutions inspired by Napoleon, comes to light with a fanfare of imperial pronunciamiento. It was not a matter of choice with the French people—it was an imperial edict that the furniture should be changed. Napoleon, who had changed the destinies of all Europe and a considerable part of Africa, who had written a new code of laws; who had reorganized a complete system of education; who had dethroned a dynasty of kings, terrorized a national parliament and made himself dictator supreme of a considerable portion of the world, had to have his own brand of furniture built and decorated according to his own vain and hero-worshipping notions.

### **Napoleon Dictates New Style in Arts**

Again quoting Pattou and Vaughn: "His fellow councils once overthrown and himself proclaimed emperor, Napoleon actively furthered the erasement from French memory of all recognition of the old regime. To fulfill his purpose in the field of interior decoration, Napoleon set up a committee of artists headed by David (Jacques Louis David, French painter, born Paris 1748, revolutionary; voted in convention for the death of the king who had befriended him, later friend, admirer and aid of Napoleon), all not only capable, but strongly imbued with both the classic tradition and faith in the Napoleonic star of destiny. Overnight, so to speak, they created the Empire style, born of political necessity and nourished by popular intoxication."

### **Details of Empire Furniture**

The style is one of massive dignity, as may be expected of anything that is copied in wood from examples of stone. It was adopted in England and America, in the former country because it was fashionable to follow the French, and in America because of sympathy for the French cause. One of its distinct creations is the bureau, which grew out of the desk. Empire style decoration is a studied return to the symbolisms of Egypt, Greece and Rome, and on its furniture we again find the lotus, the sphinx, the swan's neck, the Athenian bees, the acanthus, the honey-

suckle, the torch, the eagle, lion, winged victory, caryatides and other ancient expressions of meaning and ornament. These were usually arranged around the letter "N", to signalize and express the personality of Napoleon and his imperial power.

## **Decline of French Craftsmanship**

England's close political relationship to France during much of the Renaissance period, created an interchange of ideas from which England gained ground in furniture development. America, likewise, has borrowed from France, and some of its most beautiful furniture in existence today bears the imprint of French refinement.

Alternate efforts were made, after the fall of Napoleon, to reinstate both the furniture of Louis XVI and, sparingly, that of the Empire. Perhaps if a record was made, that of Louis XVI would be found to predominate, but later adaptations contain nothing original and little or no change from the established style.

With the decline of France as a European power, England, through her growing maritime supremacy and colonizing activities, takes over the leadership in many of the economic, social and political activities in which France had excelled. The making of furniture became one of them.

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## CHAPTER XI

### ENGLISH MASTERS OF THE LATE EIGHTEENTH CENTURY

#### **Fundamental Expression**

The student will recall that in previous chapters reference has been made to the urge for individual expression which has animated artists and artisans since the earliest times. This urge became more than ever manifest during the Renaissance period, particularly in France and England. With the growing resentment of the people of France against the oppression of her rulers, and in England against the arrogant sovereignty of her kings, came an equivalent daring of initiative on the part of the individual. The struggles for constitutional freedom, as established in England, under Magna Charta, and after the revolution in France, had a marked effect upon the litera-

ture and arts of both countries. Economic enslavement to established rule had passed. People wanted a voice in their government and something to say about their own lives. The painter no longer dedicated his efforts to the church, the state or feudal suzerain. The writer wrote about what he saw and believed. Likewise the designer of furniture felt a greater freedom to express his own concepts in the work of his brain and hands. He was no longer enslaved to the court, to his king or to his king's mistress. He listened instead to the voice of the many, observed the trend of events, the likes and dislikes of the people with whom he dealt. Had he the talent, he was free to be a leader and his leadership was recognized as that of an individual instead of merely reflecting the capriciousness of royalty or the tastes of a ruling minority. From this trend of political and economic freedom we derive, more than from any other source, the custom of naming a style of furniture from some individual, such as that of Chippendale, Adam, Hepplewhite, Sheraton, Duncan Phyfe and others. The artist and craftsman had come into their own and when and where they found favor, their works lived after them. It must not be forgotten, however, that the period itself, in which these men lived, had a certain identity of its own. These masters had many minor contemporaries who worked in the same and in their own styles. In fact, so numerous were these in the time of Adam, Hepplewhite and Sheraton that many pieces accredited to them cannot safely be identified as products of their own design or workmanship. Nevertheless, the late Eighteenth and early Nineteenth centuries in England was a period of individuality from which modern furniture making takes much of its guidance. It is also, perhaps, the best known furniture period, standing as it does by itself and in sharp contrast with the productions of any other time.

### **Dawn of Quantity . Production**

One of the distinctions of this furniture, as it concerns the modern maker and user of furniture, is that these styles lent themselves more readily to the industrial production of furniture than did their predecessors. The machine was well under way in the early Nineteenth century. There was a growing demand for furniture and an inevitable drift toward its production in quantities. While the furniture craftsmen of the late Eighteenth century did not and could not have anticipated future demands or

future methods of manufacture, they did, nevertheless, confine their efforts to the simpler forms of expression of style and beauty. This expression, in turn, became intensely popularized in later times because it could be executed at less cost by the aid of machinery.

## Chippendale

Inasmuch as the details of the lives of the great English Masters of furniture designing and building will be discussed in greater detail in other parts of this work,\* no effort will be made to feature them in this chapter. The outstanding mind was that of Chippendale, who is regarded by many as the greatest designer and builder of furniture in history. Though but little is known of his private life, his shop in St. Martin's Lane, London, was one of historic import. He came into the domestic life of England at a time when the "English Freeholder" had ceased struggling against his barbaric instincts and often reluctantly accepted the ultimate in a sedentary civilization. Beginning with the Elizabethan period, the English home had up to this time undergone more changes than during the dozen centuries which had followed the extinction of Roman influence. The continent had exercised its inevitable influence upon English lives, which influence, however, was never accepted without English modification. The lodge-like manor was giving way to buildings of architectural taste and the drinking hall became a sitting room with some semblance of comfort and cleanliness. Hounds were no longer permitted to share the evening meal with their masters and the horse could no longer be ridden into the manor hall. For a more intimate understanding of the social history of England, the reader is referred to a new and splendid work on the subject, "Home Life in History," by Gloag and Walker (New York, 1927). The authors carry a mythical family through all the history of England, surrounding it with the atmosphere and traditions of differing times and periods. Reaching the period now in review, the buying of furniture by "Kettlesing and his lady," is thus described:

### Buying Furniture in 1754

"On an October afternoon in 1754 we may discover the master of Kettlesing and his lady in their respective Sedan chairs, bound for number 60 St. Martin's Lane,

\* See Technical Descriptions. The Chippendale Style.



where the showrooms of Thomas Chippendale, cabinet-maker, are situated. The chairmen halt at the arched doorway; my lady alights and walks into the shop, her huge hooped skirts swinging; her carefully dressed hair, puffed at the sides and powdered, surmounted by a cap from which a veil trails over her shoulders. Mr. Chippendale bows low. Gentry were gentry in those days, and a tradesman, even though he be a golden craftsman to boot, must know his place if he is to do business. George Nidd nods carelessly in response; he has visited Chippendale before in company with other gentlemen of fashion, and has bought a copy of the craftsman's *Director* from Osborne, the bookseller in Gray's Inn. He wanders about the shop while Chippendale and his assistants show his wife drawings and carry chairs, which they place before her for inspection, as she sits enthroned on a big settee which resembles a double chair.

"'Odds, Catherine, have done with your drawing-rooms and boudoirs!' Mr. Nidd presently exclaims. He pulls a jewelled watch from his fob, and says. 'Half an hour of talk and nothing chosen; Gad's life, we'll never reach the dining-room and we keep this pace!'

"'Perhaps, sir, while her ladyship is viewing these designs you may condescend to present your wishes to me,' Mr. Chippendale ventures to suggest.

"'Yes, sir, I will, sir,' replies Mr. Nidd; and while his wife keeps those two obliging young assistants on the run, the furnishing of the dining-room at Kettlesing is planned.

"'Good chairs, Mr. Chippendale, that comfort your body without creasing your coat. 'Slife, would you have me rise from table with a garland pressed betwix my shoulders?' This protest is brought about by Mr. Chippendale's latest chair-back designs with interlacing ribbons and flowers entwined with graceful cunning by a master carver. But George Nidd will have none of them; and he chooses good broad-seated chairs as simple as the great craftsman can bear to make; and then the sideboard is discussed. For glass there must be good storage space; nor are the small, secret cupboards in the sides to be forgotten, cupboards which are to house certain vessels for the relief of gentlemen who have passed the third bottle stage. And then comes the dining-table; fine mahogany is needed here.

"'As sweet a piece of timber as I can choose, sir, will



go into the top,' promises Chippendale, 'finely marked in the way of this royal wood.'

"'A fig for your markings!' cries Mr. Nidd; 'the marks a glass makes when the cloth is drawn are all we shall care for.' And his business done, he bids Mr. Chippendale to start work with all speed, and then to his wife: "'Pray madam, have you done bleeding my purse?"

"After a growl or two at her tardiness, he leaves her with the expressively obliging Mr. Chippendale and his long-suffering assistants, and clammers into his chair, cursing as he directs the chairmen to take him home."

While much has been said and written about Chippendale and credit given his artistry and craftsmanship, he was, perhaps, as much a student of human nature as he was a maker of furniture. He sensed and acted in the spirit of the times. He was daring and free in his art and courageous in its execution. A fearless user of the ideas of others, he would be called, in literature, a plagiarist in painting and sculpture, a copyist. Yet, his plagiarism and copying brought forth a result uniquely and distinctly his own. He was able to harmonize the Oriental with the French and give it an English originality. Added to that, he had the ability to "sell" his furniture not alone for its beauty but as a prevailing and accepted style "among the select and discriminating gentlemen and ladies of England."

### Chippendale's Influence

Chippendale's influence upon the furniture subsequent to his time has been greater, perhaps, than that of any other individual in furniture history. This influence began early, in fact, with his immediate successors and continues to this day. One of the highest tributes to his work is the appeal of his art to the great numbers who have studied him and enjoyed his concept of furniture beauty. His name is, perhaps, better known than that of any furniture builder in historic or modern times. So many were his imitators that much of the work attributed to him cannot be verified. That he produced a great deal of furniture is known but it would be quite impossible for one man, in a single lifetime, to have been responsible for so great a production as is generally accredited to Chippendale. Likewise, there has been much misinformation concerning Chippendale and his works, resulting in styles and fancies bearing his name or influence which are in no

way related to his school. His name has often been played upon by the wise and near wise and used as a stepping stone of argument and debate. At all events, he left the furniture arts richer than he found them and the home is more beautiful because he lived.

### **The Brothers**

#### **Adam\***

The Brothers Adam—Robert and James—appear in furniture activities of London in 1765 as architects and planners of furniture and home furnishings. Robert Adam studied in Italy and was much influenced by the art of Pompeii, which was rediscovered in 1748. "The influence upon furniture exerted by the Brother Adam," says Burgess, "came through their architectural works and the fame they won as designers and decorators. Indeed, the influence they exerted on the furniture of the period was remarkable, in that only a very small quantity of furniture could have been made under their own direction. They are known to have placed commissions for furniture in keeping with their architectural designs with the smaller working cabinetmakers, and it is very probable that they did so with the more important firms. Indeed, it is well known that Hepplewhite and some of his contemporaries were strongly influenced in their work by the architectural designs prepared by the Brothers Adam. It was in 1773 that they published the first parts of their important book entitled 'The Works in Architecture of Robert and James Adam, Esquires,' a book which came out in folio numbers. During that period the style the brothers formulated was gradually spreading, due probably to the novelty of their designs and the crisp freshness which they imparted to them."

#### **Known as "Adelphi"**

In the preface to the works by the Adam Brothers, who were known as the "Adelphi," they present the following definition of their work: "We have not trod in the path of others, nor derived aid from their labours. In the works we have had the honour to execute we have not only met with the approbation of our employers, but even with the imitation of other artists to such a degree as in some measure to have brought about in

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\* See Technical Descriptions. Adam Style.

this country a kind of revolution in the whole system of this useful and elegant art. These circumstances induced us to hope that to collect and engrave our works would afford both entertainment and instruction.

"If we have any claim to approbation, we have founded it on this alone: that we flatter ourselves we have been able to make use of, with a fair degree of success, the beautiful spirit of antiquity, and to transfuse it with novelty and variety, through all our numerous works."

## Noted Contemporaries

Many noted artists of the time worked for the Brothers Adam and rendered them assistance which has enhanced their style and contributed to its beauty. Among them were Angelica Kauffman, Zucchi and Cipriani; and Pergolesi, whom they brought from Italy. The style of the Brothers Adam may be said to represent one of the most studied and refined expressions of beauty and form ever applied to furniture construction and it lives today in many of the finest homes in America and abroad. While the Brothers Adam were not themselves furniture-makers, having had all their work executed for them, they succeeded in harmonizing furniture with its surroundings in a manner which emphasized orderliness and taste and gave it an added fitness in its relation to the architecture of the time.

## Hepplewhite\*

Little is known of the life or the early beginnings of George Hepplewhite. He was a cabinetmaker somewhere in the Parish of St. Giles, Cripplegate, his style being accepted between the period of Chippendale and Sheraton. He was a contemporary of the Brothers Adam and Thomas Shearer, who designed many of the plates in Hepplewhite's book, "The Cabinet-Maker and Upholsterer's Guide." "It is especially worthy of note," says Clouston, "that in the preface of 'The Guide' there is no claim made to originality but rather the reverse. The drawings, we are told, are all new but eccentricity of any kind has been purposely avoided. \* \* \* From this it will be seen that the claim and intention of the book as expounded in its preface is to be an accurate illustrated catalog of the artistic

\* See Technical Descriptions. Hepplewhite Style.

feeling of the workers of the time in furniture rather than the individual taste of any one man or set of men."

George Hepplewhite died in 1786 and his business was carried on by his widow, Alice and partners under the name A. Hepplewhite & Co.

### **Sheraton\***

The personality of Thomas Sheraton was as interesting and colorful as the furniture designed by him. He was born in Stockton-on-Tees about 1750 or 1751 and worked as a journeyman and cabinetmaker. The only accurate knowledge we have of Sheraton is from the description of him by Adam Black, his friend and biographer, from whom we learn that Sheraton's life was a constant struggle for a livelihood, that he was a self-educated man with an apparent lack of orderly instincts. He was a writer on religious subjects, a Baptist preacher, a pamphleteer and furniture designer and frequently interspersed his philosophy into his writings and dissertations on furniture. It is not known that he ever made any of the furniture accredited to him. This notwithstanding, the furniture he designed is noted for its practical usefulness as well as outstanding beauty and is based on a very thorough knowledge of both the art and the craft. There is some doubt as to when he arrived in London, though it is generally believed to have been between 1780 and 1790. Soon after his arrival in London he published "The Cabinet-Makers' and Upholsterers' Drawing Book," and later produced other works on furniture, which, though contributing to the general knowledge of the subject, did not rank as literary achievements.

Sheraton died in 1806 in abject poverty and embittered against society and his contemporaries. His family was left in distressed circumstances and the name seemed for a time to have been doomed to extinction. Today the name of Sheraton ranks with that of Chippendale, Adam and Hepplewhite as sponsoring a style of furniture distinct because of its refinement and elegance and as having an artistic fitness in any environment of culture and taste.

In the "Memoirs of Provost Adam Black," Sheraton is described as "a scholar who writes well, draws, in my opinion, masterly, is an author, bookseller, stationer, and teacher of drawing. We may be asked how comes it to pass that a man with such abilities and resources is in such

\* See Technical Descriptions. Sheraton Style.

a state? I believe his abilities and resources are his ruin, for, by attempting to do everything, he does nothing"—a criticism, perhaps, to be justified only by money-making standards. Sheraton certainly was financially a failure, being probably deficient in business faculties, but in the roll of great furniture designers "poor" Sheraton, earnest, if dogmatic, could not have achieved his reputation had he "done nothing."

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## CHAPTER XII

### THE BEGINNING OF AMERICAN FURNITURE

#### Accumulations from the Old World

As has frequently been observed in this sketchy resume of furniture history, to fully understand the underlying influence in changes of types and styles of furniture, the student must have a clear knowledge of the past as it relates to the shifting destinies of our civilization. Furniture design, furniture construction, in fact, our sum total concept of furniture beauty and utility, are the results of the examples of the past, plus the ever changing pulse of existing emotions. Furniture is to our sense of beauty and comfort, what law is to our sense of social and civic responsibility. The examples of 5,000 years produced the furniture beauty of the late Eighteenth century in England. It could not have been evolved without the Egyptian and Mesopotamian architecture from which, in turn, Greece derived its classic thought; Rome, its Composite; Medievalism, its Gothic and the Renaissance, its freedom.

All through these periods, the civilized peoples of this earth struggled for greater freedom and higher standards of human comfort. Laws were made and changed, new traditions established. Standards were shifted, sometimes over great periods of time, sometimes rapidly, as the result of a single battle. The conqueror alternately imposed upon the conquered his own terms, introduced his own traditions, or permitted them to work out their own problems, plus his guidance or requirements. The result was a groping for less resistance, for more security, more beauty, more happiness.

## **Enter America**

Enter a new thought, a new hope in human contacts. Here in America was a new and vast country—more room in which to grope, to speculate, to dream and to act. The student of American history knows, however, that the trail blazers of American freedom did not need to dream. They had dreamed when their cup of bitterness was overflowing under the political and economic oppressions of the Old World. Here was new land, which they might own, and once owned, they might govern. Their first concern was their right to live their own lives, to worship God according to their own dictates, to make their own laws. Their struggle to attain these hopes is too well known to warrant comment here. Rather let us reflect upon what they found with which to do, to work and to achieve.

In America, as well as in ancient Egypt, the home, the habitat, became the pivot around which revolved all contacts. The early American settlers were not so much concerned with the artistic beauty of the home as with its security. Had they been, it would have availed them but little because there was little with which to work in the creating of beauty. Their furniture had to be practical, utilitarian. They all but returned to primeval conditions which called only for food, shelter and security.

## **Definite National Spirit**

From the very first, however, American made furniture expressed a definite national spirit. In contour, style and appearance it leaned toward the rugged simplicity of the Cromwellian, though lacking even its sparing ornateness. But it was American. We call it Early American. It was our own. And ever since, all furniture made in America, large or small, good or bad, has retained something of that spirit of nationality. Critics aver that there is no such thing as an American style. That may be true as style is expressed over a distinct period but it is not true as it relates to the furniture itself. American furniture will always exist where there are Americans.

## **Expressing Our Own Ideas**

The critic who judges American furniture only as it relates to the established traditions of the Old World, forgets

that in common with the people of all ages we must express, over a period of time, our own concepts, our own national and individual tastes; that we must reflect in our furniture our own development, aims and ideals. Considering that we have been thus engaged for less than 200 years, there is consolation in the assurance that there is still hope for a distinctly American style of furniture which will convey, besides the beauty of the past, our own individuality and character. Whatever that style may be, however it may compare with other styles in other lands, it will always symbolize that spirit of American freedom and courage which inspired our pilgrim fathers and which made its appearance in the first furniture we called American.

## American Colonization

It is significant that the first development of American furniture is almost contemporaneous with the awakening of England to her manufacturing shortcomings. American colonization began during the reign of James I, when the Dutch were still leading all European countries in the furniture trade. The changes which later took place in English furniture, therefore, had a marked influence upon the colonial artists and craftsmen who were loyal to the British crown. But, as England refused to accept her furniture from the continent without revision to suit the English temperament, likewise the colonists amended their furniture to suit both their needs and their tastes. The Dutch were settling in New York and did not overlook the possibilities of furniture trade. "The influence of the Dutch in the New World," says Luke Vincent Lockwood in his splendid work, "Colonial Furniture in America," "was both direct and indirect. \* \* \* The Dutch settlement in America was made primarily for trading. Manhattan Island was selected because of the magnificent harbor as the most desirable post for fur trade. \* \* \* Although the Dutch rule was of but short duration, its influence has been strong. Dutch customs and traditions have persisted even to the present day, giving modifications of designs which are easily recognized."

In Virginia the gentlemen adventurers who settled in Jamestown kept in close touch with the fatherland and engaged with England, according to their prosperity, in an active exchange of necessities. While little furniture is mentioned in their lists of exchange, they include prac-



tically every household article known to the times. The principal export was tobacco.

### **Multiplicity of Influences**

It may therefore readily be seen how many influences entered into the making of early American furniture—influences which continued for political and social reasons for nearly 100 years. Sooner or later, the sum total result had to be named, or find a definite classification. Containing, as it did, the very apparent details of such styles as that of Chippendale, Adam, Hepplewhite, Sheraton, Empire, and others to which was added the American designer's own concept of form and decoration, the furniture became known as "Colonial," if for no other reason than that it was in use by the colonists. There is considerable confusion as to just what type of early American furniture can be called Colonial. Most authorities seem to agree that it was not until the revolution, or soon after, that the furniture made in America took a sufficiently distinct form to be thus designated.

### **Relation to Architecture**

There is also considerable confusion as to the distinction between Colonial furniture and Colonial architecture. The former has little, if any, relation to the latter, except for the presence of the post. The post which often appears in Colonial furniture, was taken from English Empire architecture and the scroll from French Empire furniture. Empire architecture was adopted in England through the impetus given to ancient thought by the discovery of the ruins of Herculaneum and Pompeii, and consisted first of modified copies of a similar style of building in France. This style, of course, was Greco-Roman and it was from the frequency of the pillar that the Colonial post found its place in the American furniture of that period. The Empire scroll influence in America was noticeable in many early American traditions.

### **Colonial Empire \***

Almost simultaneous with the appearance of the American Colonial style of furniture enters the Colonial Empire, a style which remains fresh and in vogue to this day. This

\* See Technical Descriptions. Colonial Empire.



style is distinguished from the French Empire by the absence of overlays, paint and gilt. American artists and craftsmen abolished all the frills which had made French Empire a rather questionable furniture style. They brought out the natural colors and grains, which in the former was covered up with paint, overlays or gilt. It is the opinion of the many outstanding designers of furniture that Colonial Empire, as reflected particularly in sofas and chairs, is one of the most attractive, comfortable, tasteful and refined types of furniture conceptions ever produced in America.

### **Windsor Style**

Included as Colonial furniture is also the Windsor style, known particularly for its spindle chairs. While the name does not imply that the Windsor style is American, being taken from Windsor castle, where some of this type of furniture was said to have been found, it seems to be pretty well established that Windsor chairs were first made in or near Philadelphia. There is an interesting tradition that the first Windsor furniture was not made by furniture makers but by wheelwrights, turners and benders. This may account for the wheel and spoke-like form of Windsor chairs. The turners turned the legs, posts and baluster splats. The benders readily formed frames and the wheelwrights put them together. If this story is true, it goes to show the early resourcefulness of the Colonial craftsman and how, even at this early time, he was working out his industrial problems and meeting his country's needs.

### **Duncan Phyfe\***

In 1795 appears the name of the first outstanding furniture designer of America and of whom it may well be said that he was the patron saint of the industry. He was Duncan Phyfe, the second eldest son in a family by that name which, in 1783 or 1784, left their home at Loch Fannich, Scotland, and coming to America, settled in Albany. Walter A. Dyer, writing in "The House Beautiful," in 1914, gives through the notes of Ernst Hagen, a New York cabinetmaker of the old school, an interesting account of Duncan Phyfe, which, by reason of the importance of the artist in America, is quoted at some length:

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\* See Technical Descriptions. Duncan Phyfe Style.

## Biographical Sketch

"Duncan" (of the Phyfe family) wrote Mr. Hagen, "then about 16 years old, learned the cabinetmaker's trade in Albany, and after a time set up a shop for himself. But he could not find work enough to make it pay in Albany, so he moved to New York and started business in Broad street, where most of the cabinetmakers were then located. He got some work from Mrs. Langdon, the daughter of John Jacob Astor, which, done to her satisfaction, got him more orders. But after all it was not enough, and he concluded that he would go back to Albany and try it there a second time. When Mrs. Langdon heard of this she persuaded him to stay here and promised to help him wherever she could and recommend him to her friends.

"He remained in New York, and after several moves finally settled at 35 Partition street, which is now that part of Fulton street lying west of Broadway, East Fulton street being then called Fair street. This was in 1795. In 1816 the name of the street was changed to Fulton and the houses were renumbered, his number being 192 and 194, with his dwelling house opposite at 193.

"In 1837 the firm's name changed to Duncan Phyfe & Sons. In 1840 it again changed to Duncan Phyfe & Son, the son's name being James D. Phyfe. In 1847 he sold out and retired, but still lived at 193 Fulton street until his death, which occurred August 16, 1854, in the eighty-sixth year of his age. He was buried in the family vault in Greenwood Cemetery, Brooklyn. His wife Rachel (nee Salde or Salade) was born in Holland and died July 17, 1851."

## Style

In the same article, the style of Duncan Phyfe is succinctly set forth by Mr. Dyer as having "a fine, livable, home-like quality," and while the quotation is applied directly to chairs, it may well be made general for all the known work of this master artist. "In general," says Mr. Dyer, "Phyfe's style throughout seems to be composed of three elements, skillfully commingled—the Adam-Sheraton, the Empire, and his own original ideas. His work undoubtedly was influenced by the popularity of Sheraton, and shows, probably unconsciously, some of the character-

istics of the Scotch adaptation of Sheraton's style. Much more clearly marked, however, is Phyfe's kinship with his Scotch predecessors, Robert and James Adam. There are in existence Adam chairs which bear a close resemblance to Phyfe's. Two Adam chairs in the Victoria and Albert Museum, in England, are particularly interesting from this point of view. One has a lyre in its back, with brass strings, and the other shows the typical Phyfe sweep of curve along the stiles, seat, and front legs. Other authentic Adam chairs exhibit details more like those of Phyfe's early work than anything Sheraton did."

## CHAPTER XIII

### AMERICAN FURNITURE BEFORE AND AFTER THE CIVIL WAR\*

The Colonial and Colonial Empire periods, as expressed in furniture styles, continued, according to most authorities, into the decade of 1840, and practically closes a distinct identification of American furniture except for short-lived and temporary trends. Early in the Nineteenth century, the power machine enters the furniture industry, (See Furniture Machinery) with which came, also, a noticeable debasement of all styles. This was due to the rigid lines in all machine-made furniture and a growing demand for furniture of a less costly character.

Water power was the first method of furnishing mechanical energy, but was soon supplanted, and for a time practically discarded, by the steam engine. Fuel was cheap and noisy and puffing "devil machines" soon began to make known their presence in the suburbs of growing cities.

#### **Spool Furniture**

The first wood-working machines to receive the benefit of power was the turning lathe and the cut-off and rip saw. The first and most noticeable product of the machine was a type made up almost entirely of turned posts, frames, legs and arms and became known as spool furniture. It made its first appearance around 1820 and continued in feverish popularity until after the Civil War. During this period, however, it created a permanent place for itself in the public's taste because it is still used in large quantities in all grades of construction.

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\* See Technical Descriptions. Post-Colonial Styles.

During the disruption of the Union, over the period of the Civil War, there was little or no activity in furniture advancement in America. The same may be said for the European countries, including England, though not for similar reasons. Victoria had become Queen of the British Empire in a period of political quiet and economic progress. France was rebuilding itself after centuries of foreign and civil wars. Germany and Italy, though still retaining their monarchical heads, were adjusting themselves to an orderly semblance of constitutional procedure. Industry was flourishing and trade expanded. Colonization continued on a large scale in all parts of the world, with a consequent increase in the supply of and demand for human necessities. Balance of power, secured by trade and political treaties, kept the war dogs at bay for nearly a century, with the exception of scattered national quarrels, such as the Prussian and Crimean wars, only to break out with renewed and unparalleled fury in 1914.

### **Economic Stagnation**

In America, however, was enacted one of the great tragedies of all times. The new Republic became divided against itself over the questions of secession and slavery, resulting in a strife with which the reader is too familiar to warrant review. The Civil War not only split the nation politically but brought on an economic stagnation in both the North and the South from which furniture, in common with all industries, suffered a decline.

### **Victorian\***

The American people continued, in a desultory way, to follow European ideas, bring back for a momentary run, alternating styles from France and England. Although beginning in England before the Civil War, the Victorian style did not make much headway in America until between 1865 and 1870, after which it entered into a state of decline. While architecturally of a more or less hybrid character, Victorian furniture gives evidence of an infinite amount of work and detail, both in design and construction.

### **Eastlake\***

Among other styles, subsequent to the Victorian, may be mentioned Eastlake, patterned after the works of Sir

\* See Technical Descriptions. Post-Colonial Styles.

Charles Locke Eastlake, F.R.S.; an attempt toward the revival of the French Empire with Romanesque decoration; Mission, in 1895; L'Art Nouveau 1903. In the last half century there have been two distinct wood periods, that of black walnut and golden oak.

Here closes the narrative of furniture as it has been drawn from historic events and from the shifting scenes of the past. No contrivance of man has reflected more faithfully his state of both physical and spiritual being. Furniture has responded in all times and ages to the thoughts and expressions of its makers. Likewise has it reflected the trends and drifts in government, and religion and in social and economic concepts. Out of this mass of human activity has simmered the good and the bad, the sublime and the ridiculous, in furniture creation. Speaking for the leaders or the mass, furniture has truthfully portrayed the lights and shadows which surrounded its constantly changing contours. The story of furniture is the story of much of our civilization, and being nearest to both the physical and spiritual comforts of mankind, will always be an index through which the future may be guided by the past.

## CHAPTER XIV

### MODERN FURNITURE\*

#### Definition of Modern Furniture

To define modern furniture, that is, the furniture which has been in popular use within the past five years, would, in reality, require a rehearsal of practically all known periods and styles. At no time in the history of furniture has there been a more general use of all schools known to the furniture arts. The same may be said for woods, ornament, mounts, inlays and fabrics. Likewise has the production of furniture increased with the development of machinery and the reduction of human effort. More furniture is now being made than at any time in the history of its use.

This fact is argued by some as detrimental to the development of the art of furniture making. To be sure, there is now being made a comparatively small amount of hand-made furniture of the type produced by Chipendale and the Adam brothers. On the other hand, those who demand this product and can afford to acquire it,

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\* See Technical Descriptions. Modernistic Style.

are as numerous today, in proportion to the general population, as they were then. In fact, the increased economic betterment has made them more numerous. The machine, however, has so thoroughly revolutionized wood-working as to make it possible to almost duplicate the perfection of the hand craftsman and, in some instances to improve upon his results. The fact that a board is surfaced by a machine, a leg turned by a power lathe, a surface smoothed by a sander, does not detract from the merit of the finished product. It is when these operations are performed carelessly for the sake of production that the finished product suffers; or when, for the purpose of favoring the machine, a piece of furniture is reduced in value to avoid hand work.

### **Quality of Modern Product**

There are furniture factories in America today producing every bit as good and conscientious furniture as ever came from the work-benches of the English or French masters. Going a step further and plus its beauty, our modern furniture is more practical than that which came out of the academic school. Moreover, many of the classic styles, even in their severest purity, do not lend themselves to either modern demands or modern concepts of art. Americans are a practical people. To them complete beauty must serve more than a decorative purpose. The ancestral chairs of the English manor may be a delight to the architect's trained eye but, if placed in an American home, they must also be comfortable. The American working or business man, artist or teacher, enjoys the faculty of repose. They are able, if they so desire, to turn from work to play with the same intensity. Therefore, a chair designed primarily to furnish a balance to a setting, does not satisfy their "every want," as expressed in Owen Jones' definition of beauty. It must also be comfortable and inviting.

This demand for a greater equalization of comfort and beauty has required a modification of period furniture for American needs. While we are in reality making period furniture, we are also making furniture to meet the needs of a people having its own concept of beauty and comfort. The ethical demand for purely period furniture is sometimes carried beyond its import as it relates to the value or propriety of the furniture in modern demand. If a room is to be furnished in the purely Jacobean style, that is another matter. Then the room becomes first of all an

historic exhibit. All else is unimportant. If, on the other hand, the room is to be furnished in the Jacobean influence, and at the same time meet American needs of comfort and utility, it cannot be accomplished without some modifications. Furniture thus made, provided it is conscientiously constructed, is fully as valuable and proper as any antique or faithful copy of the period itself.

## **Furniture Intelligence Increasing**

Another advantage offered by the present method of furniture-making is the opportunity it affords for a greater knowledge of furniture and the stimulus it creates for a general upward trend in public appreciation of good furniture. Furniture catalogues of some 40 or 50 years ago disclose startling comparisons in the price of the finished product with that of today. A bed could then be purchased for \$5, selling wholesale at, perhaps, \$2.50 or \$3. Much of this furniture was well made, strong and enduring. But it stands to reason that for this price there could be no structural or decorative enrichment. Likewise, at the present writing, whole suites may be purchased from \$50 to \$100, having the outward appearance of quality merchandise. The purchaser will soon learn, however, that what he bought was not furniture in the sense that furniture is an artistic and cultural commodity. The more of the better grades of furniture, therefore, that can come within his reach, the more apt he will be to avail himself of the opportunity of acquiring them. The only manner in which this can be done is through the increased efficiency of the machine.

The contention however that much furniture is being made in the name of quality products which does not measure up to its reputation is not beyond dispute. As stated in a number of instances in this Manual, some of the most vital things in furniture cannot be seen. Furniture has a "hidden value" equal in every respect to its visible value. It is difficult for the inexperienced buyer to determine if a joint is doweled, mortised, screwed or nailed together. Unscrupulous makers of and dealers in furniture do not hesitate to parade furniture as a product of quality which has no claim to that designation. There is little or no recourse in contending against such deception because it involves deliberate dishonesty. Such practice comes within the general category of wilful deception on the part of the maker and seller and ignorance on the



part of the buyer. This deception must be clearly distinguished from legitimate shortcomings of furniture in so-called "quantity productions." Such furniture is usually graded according to its worth. In fact, large producers of furniture make so large a variety of styles and grades that to protect themselves they must clearly distinguish these grades. They do not, therefore, make the same claims for a suite costing \$400 that they do for one that sells for \$1,000. At the same time, they are better equipped to educate the public toward a more discriminating taste for furniture than were any of the old-time craftsmen who, in a whole lifetime, did not produce as much furniture as is made in some of our modern establishments in a day. The fact alone, therefore, that furniture is made on a large scale does not always argue against its value.

### **Manufacturer Influenced by Consumer**

Furniture buying, as it relates to the value of furniture, is done largely in accordance with the means of the buyer. Where such means is accompanied by taste and study, both the buyer and maker of furniture meet on common ground. It is to the advantage of the conscientious maker of furniture to reach the intelligent and exacting consumer. The latter has a wide field in which to choose. There is much good furniture being made in America. But only in proportion to the demand for quality product can the manufacturer of furniture see his way clear to keep up or improve upon his output. This demand, in the opinion of this Manual, is increasing by reason of the advancing knowledge of our people, and for the further reason that quantity production of furniture will eventually raise the standard of all furniture made and used.

The practical education of the average furniture buyer, as relating particularly to commercial furniture of quality, is well defined. The first furniture is sold to the bride and groom. Usually, they seek the best they can get for the least money. If the merchant who sells them this furniture can but prevail upon them to get one piece of well-made, quality merchandise, if only a single chair, that piece of furniture will instill into the desires of that couple a continued urge for more of the better things. This is a method that has proved itself a success. But where there is not a single piece of furniture arguing for taste and refinement, there is no soil in which taste and refinement can grow.



## Future of Furniture Creation

The present is rich in opportunities for increased furniture refinement. The American people are economically the most fortunately situated among all inhabitants of the civilized countries. The nation has readjusted itself from the effects of war and is enjoying a period of sane and sound prosperity. That the people have money is evidenced by the amount of it in the savings banks and in investments. That they are willing to spend it is proved by what they own in property and in comfort-bringing possessions. That they must sooner or later turn to the enrichment of the home is self evident. That such a drift is now on its way is manifest in the attention paid to the home arts by general publications, newspapers, schools and colleges, libraries and in private and public study clubs. It is for the maker and seller of furniture to engage in an intensified educational campaign looking toward a better and more general understanding of both the visible and hidden values in furniture, which, coupled with the present willingness of the public to learn, should bring rich results in a demand for furniture that will continue to be an inspiration to the present and to future ages.

—A. P. Johnson.

### BOOKS FOR REFERENCE HISTORY, ART AND CUSTOMS

*The Law of Civilization and Decay. An Essay on History.* Brooks Adams.

*Illustrated History of Furniture from the Earliest to the Present Time.* Frederick Litchfield.

*The Story of Mankind.* Hendrick Van Loon.

*Symbolical Language of Ancient Art and Mythology.* R. P. Knight.

*The Outline of History.* H. G. Wells.

*History of Ancient Civilization.* Charles Seignobos.

*Cambridge Ancient History.* J. B. Bury.

*History of the Ancient World.* M. Rostovtzeff.

*The Ancient Egyptians.* Sir J. Gardner Wilkinson.

*Art in Primitive Greece.* Georges Perot and Charles Chipiez.

*Herodotus.* George Rawlinson.

*History of Art in Persia, (same in) Phrygia, Lydia and Lycia, (same in) Sardinia, Judea.* Georges Perot and Charles Chipiez.

The Ancient City, Religion, Laws and Institutions of Greece and Rome. N. D. Fustel de Coulanges.

Eternal Rome. Grant Showerman.

The Analysis of Art. DeWitt H. Parker.

Ancient Rome and Modern America. Guglielmo Ferrero.

The History of the Decline and Fall of the Roman Empire. Edward Gibbon.

History of Civilization from the Fall of the Roman Empire to the French Revolution. F. P. G. Guizot.

Principles of Western Civilization. Benjamin Kidd.

Roman Britain. Margorie and C. H. B. Quennell.

Civilization During the Middle Ages. G. B. Adams.

The Art of Illuminating. Tymms and Wyatt.

Manners, Customs and Dress during the Middle Ages. La Croix.

Illustrated Hand-Book of the Arts of the Middle Ages. M. Jules Labarte.

Ecclesiastical Art in Germany during the Middle Ages. Wilhelm Lübke.

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Civilization, Its Cause and Cure. Edward Carpenter.

Dresses and Decorations of the Middle Ages. Henry Shaw.

History of Civilization in England. H. T. Buckle.

Home Life in History, (a story of England). Gloag and Walker.

History of Civilization. Emil Reich.

Religion and Art. Alessandro Della Seta.

French Interiors, Furniture Decoration During the Seventeenth and Eighteenth Centuries. T. A. Strange.

The French Revolution. Thomas Carlyle.

A Short History of the English People. H. R. Green.

Our Republic. A History of the American People. S. E. Foreman.

The Encyclopedia Britannica.

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The Historical Writings of John Fiske.

Cambridge Modern History. Lord Acton.

Modern European History. Charles Downer Hazen.

A History of the American People. Woodrow Wilson.

Styles of Ornament Shown in Designs. Alexander Speltz.

## PART II

# *Origin and Identification of Design*

*Based Upon the School of Owen Jones*  
*[Plate Illustrations by Harold Smalley]*



# *Origin and Identification of Design*



In order to aid the student in identifying and understanding furniture design and decoration, without involving him in the technicalities of architecture, the basic designs from which most furniture is built and decorated are herewith reviewed and illustrated. Both reviews and illustrations have, of necessity, been made short and simple and form only an approach to the subject. For further reference, the reader is referred to a bibliography which will be found at the close of the study. In this classification of basic designs, no effort has been made, except incidentally, to identify them with the furniture designs of different periods. It is merely to show the sources of design and the circumstances surrounding its origin and adaptation to architecture and furniture. In limiting these sources to ten major schools, the compilers do not discount the importance of periodical deviations, in the making and decorating of furniture, from any one or all of them. Many foreign influences, such as Hindu, Turkish and latterly Rococo, while in themselves original or supplemental, are not sufficiently identified with basic design, as it is commonly known, to require a definite classification. Wherever such influences appear, they will be treated in the discussion of the furniture or period in review.

## **The Understanding of Beauty**

"True beauty results from that repose which the mind feels when the eye, the intellect and the affections are satisfied from the absence of any want."—Owen Jones.

Beauty is progressive and we respond to beauty according to the high or low notes that it strikes.

To understand beauty is to satisfy the highest and finest senses of mankind. To attain that understanding requires first a knowledge of form, or design, whether in the contour of a face or in the lines of a chair. On that form is placed the ornament or decoration.

Creating beauty is a form of expression. This expression varies in different countries and among different peoples and races according to their understanding. All have given to each other. All have contributed to our sum total knowledge of the arts. In the process of that contribution the basic principles of art have retained their identity. It is from this segregation, or identification that we drive the "style," "school" or "period" by which the arts are known.

Furniture distinction follows this rule closely. Where it has not been followed or where the basic laws have not been obeyed, there has been a corresponding decline, or decay, in the furniture arts.

To understand design we must go back to the primary expressions of human beings. We must know where design comes from and how it progresses in the exchange of ideas. This study is older by far than is the study of furniture itself, because the arts were well advanced and in some countries fully matured before the first piece of ornate furniture was made.

## **Classification of Civilization**

The process leading up to our civilization may be summarized into three periods—Savagery, Barbarism, Civilization. (Morgan.) Each of these periods have produced distinct and well defined types of art. Likewise, have the arts, particularly as they are related to structural or decorative design, been divided into similar classification. The arts of the savage peoples are brought out by natural instinct, usually in imitation of natural objects. Sometimes these expressions are conventional, yet true to their purposes. Barbarian peoples, as for instance, the American Indians, carry design still further away from the object and into a deeper maze of the imagination. Classic design



① Carved wood from the savage tribes of New Zealand. Pure geometric design.



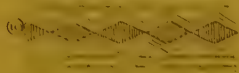
② From the Sandwich Islands comes this geometric pattern



③ and ④ - Ornaments on urns of the Bronze age. Even during the age of Barbarism - the craftsmen used a systematic repetition of a motif in design.



⑤ ⑥ ⑦ ⑧ ⑨ are taken from Egyptian wall decoration. Compare ⑨ and ⑩ with savage ornament in ① and ②. Note the marked similarity between ⑤ and ③ though centuries apart - ⑦ is not unlike ④ in design.



⑩ An early Persian border that in contour and arrangement is like ④ and ⑦.

⑪ The Assyrians borrowed the lotus from the Egyptians but used the cone of their sacred tree. Compare with Egyptian Design in ⑤

Note. - (It will be observed that the design of the higher civilizations is in a measure an enlargement on the original design of savage and barbarian tribes. In the proportion that the arts have flourished has design been enlarged from small and rudimentary beginnings.)

is the ultra refinement of these in proportion and decoration.

The same urge that caused the savage to tattoo his face to satisfy his creative instinct, is reflected in every advancement and refinement in furniture design and decoration. Hence, correct furniture must have the highest average of perfection in design as we know it. Therefore, we cannot with good grace impose an Italian ornament upon a Colonial structure unless both are modified to meet the demands of harmony, which is comfort and repose. Clashing of proportion, ornament or color, creates a disturbance to the eye and a consequent restlessness of the senses. It is a significant fact that there is less confusion in the arts of both the savage and barbarian tribes than in those of highly civilized peoples because the former held closer to the natural objects which they copied both in form and color, and expressed more simply their passions, such as fear and courage. Likewise in furniture, the most exquisite examples are those which have been held to the natural laws of proportion and symmetry.

## **Ornament and Design**

### **Savage and Barbarian Tribes**

The ornament of savage and barbarian tribes have come down to us through designs on cloth, in straw, on utensils, weapons, totem poles, masks and, occasionally, as cut into stone or impressed in clay. They are for the most part geometrical and often as exacting as if measured under a magnifying glass. In some instances these designs rival the works of the highest civilization. They include every combination known to the use of the square and triangle, with a proportionate accuracy in a sparing use of curves. Where living objects are used they are frequently grotesqued to impart fear or reverence. However, what may appear demonical to our civilization may, with equal sincerity, have been beautiful to the savage. This exaggeration in the expression of strength and greatness continues well into civilized times, as is witnessed to some extent in the arts of the Egyptians, profoundly in that of the Assyrians and Persians and finding somewhat of a revival during the early Middle Ages.

### **Egyptian**

Inasmuch as the chronology of mankind begins in Egypt, it is fitting that Egyptian design should begin any comparative study of the historic arts. There being no



evidence of the origin of Egyptian art, it is believed that its birth and development were original with the Egyptians or conveyed to them from a much older civilization in Central Africa. Traces of Egyptian decoration, however, are found in the arts of Assyria, Greece, Byzantine, Arabia and in the Moresque and Gothic.

Egyptian decorative design, except in the reproduction of animals, gods or human beings, revolves largely around the stem, leaf, bud and flower of the lotus and papyrus plants, which grew in abundance along the River Nile. So universal is the use of these objects and they are presented in so many forms and variations that they may be said to be the foundation of all Egyptian decorative art. Supplementing these were designs created from the palm branch from which the Egyptian artist developed twistings, pendants and scrolls and from the feathers of rare birds which were carried before the kings as emblematic of their power and authority.

From Egypt is also derived the polychromatic arts. The Egyptians painted everything, using flat tints with neither shade nor shadow. While the Egyptian's coloring was as conventional as his architecture, he did not fail poetically to convey to the mind what the object was designed to represent. With black and white as a background for distinctiveness, the colors used by the Egyptians were principally blue, red and yellow, with an occasional green such as that on the leaves of the lotus.

Owing to their great reverence for their dead and the care taken in the preservation of mortal remains, Egypt has contributed more to our knowledge of the distant past than any other country known to history. Much of the contents of Egyptian tombs may be found in the museums of the world and from which we have derived much knowledge of their furniture and domestic arts.

### Assyrian

While the early civilization of the Mesopotamian valley, with its familiar biblical setting, has contributed a wealth of interest to our knowledge of the remote past, Assyrian, Chaldean and Persian art cannot be said to be original, but largely borrowed and influenced by the religions and standards of living of the time. Much of it came from Egypt. No basic object, with the occasional exception of the use of the pine cone on sacred trees, seem to have predominated in Assyrian design. The natural laws of radiation and the use of geometric principles seem to have governed what has come down to

modern times. Although Assyrian ornament is not based on the same types as the Egyptian, there is no conflict in its presentation. That is why it is believed that much of it was directly or indirectly copied from Egypt due to the frequent political contacts and conflicts which existed between the two countries from the earliest times.

## Grecian

Greek art, though borrowed partly from earlier and contemporary civilizations, reached the highest state of perfection known either before or after its time. Unfettered by religious influences or racial superstitions and unrestrained by tradition or political oppression, the Greek conception of art has become the unerring truth in all contemplations of man-made beauty. Unlike the arts of Egypt or Assyria, it was neither symbolic nor representative. It was purely decorative. The ornament was not an integral part of the structure to which it was applied. So harmonious was the structure and its decoration, however, that if one was removed, the other would still remain complete. Greek art, though sometimes ornamental to the extreme, may be summarized as being the ultra in refined taste and from which has developed much of the beauty we enjoy today in the domestic and home-furnishing arts.

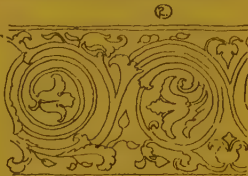
One of the foremost distinctions in Greek ornament, which should be understood by the student of furniture, is the manner in which the various turnings of the scroll grew out of one another forming a continuous line. When we compare the Greek scroll with the flowing scrolls of the Byzantine, Arabian, Moresque and Early English, we are impressed with how a slight change in detail developed into an entirely new order of artistic thought and expression. In the latter styles and in those more familiar to the modern eye, the twistings of the scroll flow to either side of a common stem, needing no definite terminals as is evident in the Greek. This relieves the scroll from the cold, though beautiful, convention that characterized all Greek art, at the same time retaining the desired proportion and symmetry.

One of the most interesting contributions of Greek art to furniture adornment is the "fret" and interlacing of design, from which is derived the innumerable forms created by perpendicular, horizontal and diagonal lines. The raking fret, as illustrated on page 95, Fig. 4, is the origin of all other interlacing ornament in styles following



① A typical Greek scroll (from the monument of Lysicrates at Athens.) having very definite terminals. The scrolls spring out of each other in a continuous line, but soon come to an end.

The flowing scroll developed from the Greek scroll, twists on itself, and is continuous in its twisting. There is no limit in the extent to which the scroll can be carried, because it flows from both sides of a main twisting stem ② is from the church of St. Sophia at Constantinople (of the Byzantine period)



② shows in line how the Greek scroll had a definite beginning and was limited in length. Compare with scroll in ① which can be continued indefinitely - with the same weight of design throughout.



③



④



③ The simple square fret - purely geometric in conception. ④ The raking fret, from which subsequent interlacing designs originated.



Arabian

Moorsque

Celtic



⑤ and ⑥ are examples of Greek band ornament showing how the Greeks borrowed from the Egyptians, Assyrians and Persians. (Compare these ornaments with those on the preceding plates)

the Greek. From this followed the Arabian fret out of which grew the infinite variety of interlaced design which the Moors, many centuries later, developed to a high point of perfection in the Alhambra.

The conventional leafage, found principally on Greek vases, is far removed from any natural type. While presenting the general principles of outline found in all plants, there seems to have been no disposition on the part of Greek artists to reproduce any plant, leaf or flower in particular.

Greek ornament, as expressed in the decorative band, may be said to be the parent of the mouldings applied later to practically all furniture. (See page 97).

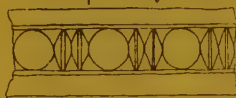
While authorities differ as to what predominating colors were used by the Greeks, it is universally recognized that their white marble structures were profusely covered with painted ornaments. No definite proof has come down to us as to what these colors were. Nearly all Greek art which has been saved from the upheavals of Greece, has been exposed to the hazards of elements and atmosphere and from which time and wear have removed all or much of the original colorings.

### **Roman and Pompeian**

What is considered strictly Roman design as taken from its architecture has little or no bearing on the furniture arts, inasmuch as it was for the most part borrowed from the Greek but lacking in Greek refinement. The typical Roman ornament consists of a scroll growing out of another scroll around a flower or group of leaves. The acanthus leaf is the principal motif in nearly all Roman ornament and is used in many forms and directions. It is applied particularly in the decoration of the capital of the Roman column, which is distinguished from the Greek orders as the "Composite." The Roman system of decoration, however, gave an impetus to a more general use of ornament, which, while detrimental to the purity it inherited from the Greek, encouraged the use of decoration to a greater variety of structural forms, including furniture.

What the Roman ornament may have lacked in color and life is made up in the ornament of Pompeii, which, while contemporaneous with and a part of that of the Roman Empire, may be classed by itself as furnishing both inspiration and ideas for furniture adornment.

Examples of Greek Ornamental Mouldings



①



②



③



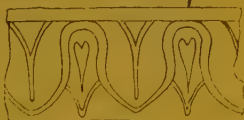
④



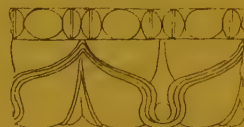
⑤



⑥



⑦



⑧



⑨



⑩



⑪

(Note the basic resemblance to these designs in the mouldings on Furniture of today)

With the simple bead (ooooo) began an enrichment as in ① and ②. This enrichment was carried into its highest beauty in the decoration of furniture during the Renaissance Period.

④ is the Greek egg and tongue, from which all the other varieties have in the course of time been derived. The dart shaped intermediate leaves have often been developed into actual darts - and the eggs have been covered with independent ornament, in defiance of their origin.

Pompeiiian ornament is light, colorful, and capricious. Interlacings and banding of Pompeiiian origin abound in an immense variety in the subsequent borderings, tracings, and interlocking designs of Arabian, Byzantine, and Moresque mosaics. Quoting Jones: "It (Pompeiiian ornament) owes its greatest charm to the light, sketchy, free-hand manner of its execution, which it is quite impossible to render in any drawing; and which has never been accomplished in any restoration of the style. The reason is obvious: the artists of Pompeii invented as they drew; every touch of their brush had an intention which no copyist can seize." The principles of Pompeiiian ornament are frequently applied in the designing of modern furniture, both in structure and decoration. It is one of the outstanding features in the Adam style and was adopted by Robert Adam, in conjunction with his architectural work while studying in Rome.

### **Byzantine and Romanesque**

Byzantine and Romanesque architecture and decoration may broadly be said to have existed in Western Asia and Europe from the Third to the Thirteenth century. The changing of the seat of the Roman Empire early in the Fourth century from Rome to Constantinople, found all the arts in a state of disintegration and decay. The new capital was built largely by Oriental designers and workmen, with the result that a radical change crept over the established and traditional schools of Greek and Roman design. This change began with a tendency toward elliptical curved outlines, sharply pointed leaves and thin, continuous foliage without the conventional bulb or flower. Out of this grew countless networks of interlaced patterns, popularly known as mosaics, and from which many decorative designs have been derived for furniture embellishment. Figure work is comparatively scarce, except in the later Byzantine, when it stands mainly by itself without any direct relation to the ornament surrounding it. Byzantine figures consist largely of images of religious characters and are stiff, conventional, and show little variety of feeling.

Romanesque ornament, though closely related to that of Byzantine, depends mainly for its effects upon sculpture. It bears no relation to the Roman arts, with the possible exception of its deep cuttings and outstanding projections. It is an intermixture of figure subjects of every kind,

Greek Ionic



Greek Corinthian



Roman Composite



Roman design and ornament were early influenced by that of the Etruscans, whom they subjugated. Later they borrowed from the Greeks, adopting in architecture both the Ionic and Corinthian order which they combined into the composite. Compare ①②③



④ A fragment of a Roman frieze - In the Roman scroll there is an abundance and confusion of ornamentation rather than the feeling of grace and rhythm.



⑤ Pompeian mosaic work - using the Greek fret as a motif. This example and the palmette band in ⑥ shows how much the art of Pompeii was influenced by Greek teaching.

⑦ A painted pilaster decoration from Pompeii. Most of the Pompeian wall and frieze painting was shaded and purely inspirational on the part of the artist who planned the design as he worked. This accounts for the spontaneity of Pompeian ornament. This type of decoration became the base of Italian ornament at the time of Raphael



surrounded with details of foliage and conventional ornament. Romanesque wood and ivory carving, as represented on page 101, will give the student a fair conception of the style as compared in the scroll, for instance, with that of the Greek and Roman.

## Gothic

While Gothic architecture and ornament does not appear to have influenced furniture to any great extent during its ascendancy, or during the Thirteenth century, when it was in its fullest bloom, the long, tapering, pointed arch, symbolic of Christian thought as expressed in the churches and cathedrals of the late Middle Ages, found a later impression upon the Renaissance furniture of France, Spain, Germany, the Netherlands and England. The term "Gothic" is generally agreed to be a misnomer, as the style bears no relation to either the arts or activities of the Goths. Its first appearance was in France, from whence it spread with marvelous rapidity to adjacent countries. The style is entirely dominated by the pointed arch and a long, slender and graceful structural form. In its application to furniture, the Gothic style gave height and loftiness to both structure and decoration. Gothic traceries on modern furniture is not uncommon and lend a charm and grace to any well-conceived decorative plan. The style may be divided into three principal periods; that of the Thirteenth century, or pure Gothic; that of the Fourteenth century, when it became *Rayonnant*, and finally, *Flamboyant* or *Florid Gothic*, in which the forms and proportions become lighter and more flexible for decoration. In the latter transformation, the florid ornament goes into more whimsical scrolls and encourages a more general distribution of ornament over structural surfaces. The Fifteenth century is generally regarded as the end of the Gothic period, especially as it relates to the use of the style in the building of churches and cathedrals. (See page 103).

Inasmuch as the period covered by the Gothic style of architecture was one which afforded little encouragement to the comforts of domestic life, we have but meager sources of information as to how much the style influenced the building or decoration of furniture. The general principles of the Gothic style were carried on, however, in all forms of decoration and enrichment, and it was on the foundation of this style that the subsequent awakening of all the decorative arts found their most secure footing.



TALLAHASSEE, FLA.



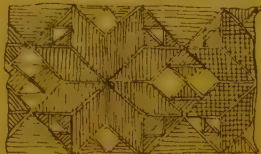
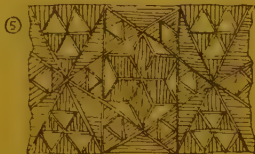
① A section of an arch in a gallery at St. Sophia. Byzantine ornament is distinguished by broad-toothed and acutely pointed leaves. In sculpture the leaves are bevelled at the edge. Note the thin continuous foliage.



② It is interesting to note the transmission of Byzantine ornament into that of later periods. Here is shown the cross of St. Andrew-foliated and within a circle-that is so common in Romanesque and Gothic decoration.

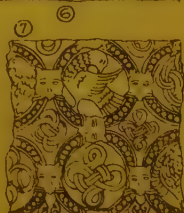


③ A Byzantine treatment of an acanthus leaf. Compare with the Romanesque rendering of the same motif below



⑤ and ⑥ are examples of geometrical mosaic work that particularly belongs to the Romanesque period. This art flourished principally in the 12<sup>th</sup> and 13<sup>th</sup> centuries. Color is suggested here by lines of different direction.

⑦ Romanesque ornament, deeply cut and with massive projections. Note the intermixture of the birds and grotesque heads with interlaced ornament.



## Renaissance

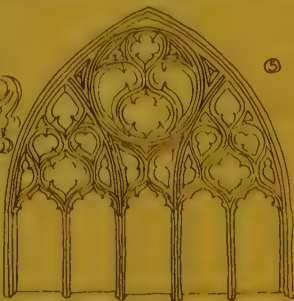
The Renaissance arts may more truthfully be called a "family of arts" than to be identified as belonging to a particular style. So liberal is the distribution of form and decoration and so varied are the sources of Renaissance design, that it stands by itself as the component of all the arts under a new and inspired treatment. Elsewhere in this Manual is a brief account of the circumstances leading up to the "awakening" we call the Renaissance (See page 37) as it applies to furniture. Its greater significance lies in its relation to architecture, sculpture, painting, literature and poetry. It is through these that furniture received its overwhelming baptism of beauty from the Seventeenth to the Nineteenth centuries. The Renaissance opened wide the door for the enrichment of furniture by all the arts, particularly those of or akin to architecture, sculpture and painting. It was an association of ideas which takes a distinct form in any expression of art that is understood and appreciated by the refined intellect.

Following the preceding manner of identification of design, the Renaissance artists, sculptors, and painters may be said to have taken their inspiration from nature, plus the guidance of the Greek and Roman classics as to proportion. Nature being liberal in all its moods, the Renaissance became liberal in all its expressions. The scrolls of flowers and leafage express more of flowers and leaves, as we see them and know them, than did the scrolls of the Greeks, Romans, Byzantines, Arabians and Moors. Figures, faces, plant and animal life are interwoven in the Renaissance styles as a part of the whole picture, rather than as an entity, as in Greek art. You cannot remove a detail, as in Greek art, without disturbing or mutilating, the picture. Renaissance design springs as from life itself into complete bloom. It is, in fact, the most truthful expression of life belonging to any period or people before or since its birth and maturity.

Among the uses in Renaissance design as it has been applied to furniture, which the student will recognize, may be mentioned trophies, consisting of ancient and modern arms, musical and mathematical instruments, such as lyres, harps, compasses; open books, and parchments with flowing lines. Arabesques, loosely tied, interlacing knots and bouquets form the principal motifs of many Renaissance themes. Interlacing of oak branches, painted in deep yellow upon a blue background, frequently used in furni-



Early Gothic ornament was conventional, principally of plant life motifs (see ①). Then followed a closer imitation of plant growth, which later degenerated into a minutely realistic copying (see ②). ③ Finial, used on choirstalls, spires, pinnacles, etc. during the Gothic period.



Gothic Tracery, was, in its earlier forms, merely decorated openings, as if pierced in slabs of stone. This is called "plate tracery" - (see ④). Later, the stone enclosing the openings was, lighter and richly moulded, as in "bar tracery" (see ⑤). The circular and geometric patterns finally gave way to more flowing designs (Flamboyant) on the continent, and to rigid rectangular arrangements in England. (perpendicular.)



Circles and sub-divisions of circles form a conspicuous part in Gothic decoration, and is the foundation of the tracery shown in ④ and ⑤. - ⑥ and ⑦ are carved panels.

ture decoration, is of Renaissance inspiration. Pleasing groupings of flowers and fruits in medallions or in festoons; "bunching" of similar motifs in corners of panels or upon surfaces having a central decoration; broad bands, interwoven with small flowers or branches issuing from them are all contrivances of the Renaissance period which have been assiduously applied to furniture decoration.

Throughout the arts of the early Renaissance period there is a notable presence of the spiritual as expressed by the use of biblical and saintly subjects around which are woven plant and animal life in rich profusion. In the later periods these subjects give way to objects illustrative of the then modern life, to comfort, and, as M. Digby Watt says: "the most distinguished artists did not disdain to design vases, caskets, basins, ewers, cups, salvers, and a variety of articles of every-day life."

It was by reason of this freedom of imagination and execution that furniture became an ideal form upon which to lavish beauty of design and decoration. More than that, the style lent itself to different interpretations in different countries. This is basically the reason why we have French, Spanish, Flemish, German, Scandinavian and English Renaissance. Leaves, scrolls, flowers, harps, lights and shadows became what the artists of the different countries saw in them, plus the impressions of their own nativity and contacts. The Spaniard produced his *vargueno* from his Moorish concept of beauty while the Norseman made a chair that resembled a Drakship headed against a storm, yet both were inspired by the Renaissance freedom which gave them permission to make these things as they saw them.

No definite dates can be set as defining the period of the Renaissance but broadly it may be stated that it began to make its appearance at the end of the Fourteenth century and became extinct as a prevailing style toward the end of the Eighteenth century. Its influence, however, particularly upon furniture, may be said to be permanent in the refined and better grades as, even in the furniture of modern times, having a known and specified style, there is a basic presence of an orderly treatment of decoration and ornament which must be traced to Renaissance distinction.

(1)



Flowing leaves, birds, flowers, animals, figures, and all things found in nature appear in Renaissance ornament. Each part of the design is so much a part of the whole, that the removal of any part would leave a blank that would destroy the entire pattern.

① is from Genoa. ② from Venice

(2)



(3)



Guglielmo IV, of Viennois, in 1140 took the title of "Dauphin" with the dolphin as a crest. This accounts for its frequent appearance in French decoration. Its artistic possibilities make it prominent in Italy. ③ is French ④ a similar interpretation by the Italians. Note importance of the scroll in all types of free ornament.

(4)



(5)



(6)



⑤ and ⑥ are band ornaments from Majolica ware of Italy. This interesting ware had a great variety of ornament. These fragments may be compared with band ornament of earlier periods, especially Moresque and Arabian.

## Arabian and Moresque

Arabian and Moresque design are included in this analysis principally for what they have indirectly contributed to furniture decoration. The former has little, if any, original connection with furniture, the latter has influenced much of the furniture of Spain and, in consequence, that in America in later times. Both are basically inspired by the similarity of environment and religious belief of the people who produced them, being born and developed in the Mohammedan world.

The elegance of Arabian design was an inheritance from the Mohammedan arts of the Persian, although the latter never reached the grandeur and beauty attained by his copyists. In both Arabian and Moorish ornament, there is a departure from leafage and scrolls growing out of one another, the scroll being usually continuous and without a break. There is also a tendency to more upright lines in all continuous or interlaced patterns and a distinct aim to distribute the pattern over all of the decorated surface. In this respect, the Moors excelled the Arabians. In Moresque ornament, the distribution over the surface is more perfect and more in proportion to the length or breadth of the objects decorated. This fact holds particularly true in the decoration of Spanish-Moorish furniture of the Renaissance period.

One of the most interesting features of Moresque ornament is the stratified surface, or plane, on which the drawing was applied. Two and sometimes three of these planes are ingeniously interwoven into one pattern. The ornament of the upper plane is usually a bold relief, while the second enriches the surface on a lower level.

The starting points, or motifs, of both Arabian and Moresque ornament, are the twisted cord, the interlacing of lines, the crossing of squares, the equilateral triangle, arranged within a hexagon. While both of these types of ornament are richly colored, the Arabian may be said to be the most outstanding, both in structure and decoration, while the Moresque is more refined and elegant. Arabian and Moresque ornament occupies the same relation to the artistic expression of Mohammedan thought that the Gothic may be said to express the thought of Christianity. It is a singular fact, however, that the former was almost fully developed within three centuries after the establishment of Mohammedanism, while it required the Christian nations



①



① Ornament on the door of the alhambra - showing how the Moors used more than one plane in decoration; both are ingeniously interwoven into one pattern.

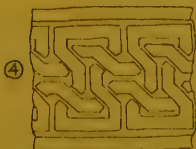
The decoration of the Moors may be likened to the vine leaf. ② in that all lines flow out from a parent stem. As the ornament is carried to its extremities, it is diminished proportionately.

The vine leaf is also divided proportionately to the most minute sap feeders.

At a distance the main lines are first apparent; then, at closer inspection, the smaller details can be seen in admirable balance. The Moors closely observed the law in nature, in that all junctions of curved lines with curved lines, or of curved with straight, shall be tangential. This is true of the lines of a feather ③ and the articulations of every leaf in nature.



②



④



③



⑤

④ and ⑤ are examples of the interlaced ornaments of the Moors. They excelled in interlacing and interweaving of geometric and Arabesque ornament.



Moresque



Arabian



Arabian

These examples of Band ornament are similar to those of the Greeks - but having this difference, in Greek ornament the leaves or flowers grew out of the scroll. In these bands the scroll is transformed into an intermediate leaf.

of Europe approximately 1200 years to bring forth an architectural and decorative style peculiarly and distinctly its own.

## Chinese and Japanese

Notwithstanding the antiquity of Chinese civilization and its development along various industrial lines long before even our most ancient civilizations, China has made little progress in ornamentation beyond the point that it reached during the activities of its most primitive people. The Chinese, none the less, are excellent craftsmen and through their natural color instinct seldom offend by a lack of consistency in their ornamentation. Their decoration is the expression of what seems to us a peculiar people whose interpretations to our sense of fitness are odd and often amusing.

The confusion in Chinese art is one of its outstanding beauties. Much of this confusion comes from fear, which is reflected in the use of the Dragon, the Sacred Mountain and the Swastika, which is symbolic of revolving motion.

Judged by the standards of Occidental schools, Chinese decoration lacks the idealism that was so evident in Greek art, for example, not to mention sentiment, as represented by worship and tradition. Chinese art, therefore, is not the result of imagination, but is rather a simple expression of motif taken from nature. The accompanying plate indicates the type of design most successfully carried out by the Chinese.

Chinese ornament also lacks the development that has characterized the arts of other nations in which one generation of artists has improved upon or changed the results attained by the preceding. At the same time it must not be forgotten that Chinese art has not retrogressed, as has often been true with the arts with which we are more familiar, but has remained the same throughout the centuries.

There are no examples of Chinese architectural ornament existing previous to the Thirteenth century, A. D., owing to the continual strife and destruction that has prevailed in all periods of Chinese history. At Horiuji, Japan, however, is a temple built in 607 A. D., by the Koreans, that is said to be typical of early Chinese architecture. Wood columns carried horizontal beams tenoned into them. Hence, there are no capitals. Chinese and Japanese archi-

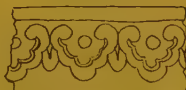


- ① is a continuous meander ② an irregular example



Motifs similar to ③ are used on nail heads in temple woodwork

Chinese frets are constructed with the intersection of horizontal and perpendicular lines in the same manner as the Greek fret. The Chinese frequently used only fragments placing one fret after another or one above the other without being the continuous meander of the Greek fret. It is unlikely that the Chinese fret is an imitation of the Greek fret, but rather a principal they discovered for themselves.



In the band ornaments above evidences the lack of imagination of the Chinese. They are primitive in expression and quite lacking the grace and rhythm of the band ornament of the Western races. However, the Chinese are true colorists and all handling of color is very successful and harmonious.



④ The Chinese always obtain better results in ornament when the foundation of the design is the intersection of equal lines. ④ is a style of this type of the design used by the Chinese and Japanese



⑤ a ridge tile from the temple of Horiuji, Japan, (7th century) Trotesque and ferocious animals appear in Chinese and Japanese decoration.



⑥ an irregular fret band found on a Japanese metal vessel ⑦ and ⑧ are typical repeating or diaper patterns. This style of geometric ornament is employed in China and Japan to lacquer work, paintings, etc.

ture alone lack this principal ornamental feature, which accounts in some measure for the strange appearance of Chinese buildings to the eye accustomed to the prevailing schools of architecture.

Chinese art was the origin of Japanese art, although the latter has been rendered in a less conventional manner. The Japanese take their models direct from nature without any attempt at interpreting them into design.

In 1624, Iyemitsu closed Japan to all foreigners, the Dutch being permitted to carry on trade with the island of Deshima only. The country remained closed for two and a half centuries, during which the Japanese made great strides in the development of their arts. Lacquer and metal work reached a high degree of perfection as did painting and printing.

The Chinese and Japanese have a tendency to overload with ornament. In temple decoration this is particularly true of both countries. In Japanese palaces and public buildings, however, there is observed a marked simplicity, the only ornaments being gilt bronze mounts. In China, similar buildings are quite overdone in a profusion of gilding and painting and elaborately carved woodwork.

—A. P. Johnson.

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PART III

*Technical Descriptions of the  
Furniture Periods and  
Styles*

[Plate Illustrations by Gentz Studios,  
Grand Rapids, Michigan]



# Technical Descriptions of the Furniture Periods and Styles

## CHAPTER I

### EGYPTIAN

**Place:** Egypt; Northeastern Africa; Valley of the Nile.

**Time:** Circa 4,000 to 300 B. C.

**Type of Civilization:** Artistically, one of the most brilliant in history.

**Sources of Inspiration:** So far as is known, the source of all Egyptian art and craft was original with the Egyptians, or inherited by them over a long stretch of prehistoric time from an older civilization in Africa. Arts and crafts similar to the Egyptian flourished in Ethiopia, now Abyssinia, and were possibly of an earlier origin. The native name of Egypt was "Kemi," meaning "the black land," from the blackness of its alluvial soil.

**Government and Conditions of the Times:** The history of ancient Egypt is divided into three parts: the Old Kingdom, Middle Kingdom and New Empire. It was governed in ancient times by dynastic rulers who visibly influenced its arts. Throughout all these periods, however, Egyptian art remained constant to its objectives which were all furnished by nature. The lotus, papyrus and palm were the principal decorative motifs, which, during succeeding dynasties and generations of the Pharaohs, were treated with differing effects. Government was despotic though seldom extremely brutal. Slavery prevailed. The most interesting furniture is found during the time of Rameses II, early in the Thirteenth century, B. C. Much of this furniture, especially the more ornate, is said to have come from Ethiopia. After the conquest of Alexander, 332 B. C., Egypt was governed for a short period by the Ptolemys and in '30 B. C. became a Roman principality under Augustus.

**Architecture:** Low, delicate and decorative. Motif for decoration chiefly the papyrus and lotus flower, con-

ventionalized. Animals and human forms were also used for decoration of table and chair legs and other terminals.

**Lines:** Graceful and harmonious.

**General Appearance:** Highly colorful and decorative. The craftsmen of the time worked in metal inlay, color, and often used carving as a method for decoration, thus achieving beautiful results.

**Structural Details:** The folding stool was one of the most common designs in chair structure. It had terminals representing bull's or lion's feet. The frame was generally mortised and had cane or rush seats. Later, however, there came into being in Egypt the high backed chair, covered with cushions and supported on decorative bases. The seats were rigid in appearance, perhaps because the Egyptian always sat upright.

**Decorative Details:** Geometrical patterns were used, painted various colors in flat tones. Ornamental seats were often inlaid with ivory, mother-of-pearl and sometimes silver, and gold and semi-precious jewels. Carvings were made to resemble lions, paw feet, hawks, palm leaves, etc.

**Woods:** Sycamore, olivewood, yew and cedar.

**Specialties:** Stools, chairs, chests, tables, stands, mirrors. The thrones of the Pharaohs were the objects of the most skillful craftsmanship and decoration.

**Modern Adaptations:** Egyptian style is often reproduced in modern smoking stands, coffee tables, end tables, nests of tables and other novelty furniture.

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*A History of Art in Ancient Egypt. A Translation. Georges Perrot and Charles Chipiez.*





- ① Egyptian wing and globe was a predominating ornament. It symbolized upper and lower Egypt. It is found on many pieces of furniture and on most of their architecture.

- ② A decorated child's chair of Egyptian times. Sphinx and human figures, and the wing and globe are motifs of decoration. The chair was originally colored and had a rush seat.



- ③ The folding stool was found in many Egyptian homes. It was frequently decorated with curved duck bills and serpentine heads. This type of stool is now commonly used as a camp-chair.



- ④ The lotus plant, leaf, bud, and flower were frequently used in Egyptian architecture and furniture decoration. They took many forms and were often conventionalized into geometrical patterns.



- ⑤ The Egyptian used, for decorative themes, the objects which were close to him. The papyrus, like the lotus, was common in all ornamentation.

## CHAPTER II

## ASSYRIAN, PERSIAN AND CHALDEAN

**Place:** Valley of Mesopotamia and what is now Persia.

**Time:** Circa 2000 to 500 B. C.

**Type of Civilization:** War-like, despotic, brutal.

**Sources of Inspiration:** Arts influenced by Egypt. Largely inspired by war and magnified power of rulers, suffering of captives and by the greatness of imaginary demonical deities.

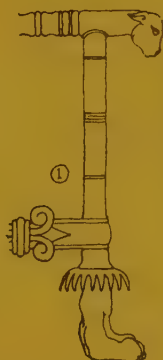
**Government and Conditions of the Times:** Assyria and Chaldea, whose history embraces the rise and fall of Babylon, were the outgrowth of a civilization developed in the valley between the Tigris and Euphrates rivers from the earliest known times. The earlier countries were known as Sumeria and Akkad. They were ruled with relentless cruelty by despotic kings and overlords. While rich in Biblical and ancient lore, these countries have contributed little to the furniture arts. The concept of beauty was picturing the suffering of the captives or the brutal power of their rulers. Neither the geographical nor political history of these countries can be rigidly separated as it relates to their arts. The conquest of Babylonia by King Cyrus, of Persia, 538 B. C., closes the ancient history of these countries as well as their influence upon contemporary civilizations. Persian art was borrowed largely from that of Babylonia and Egypt.

**Architecture:** Massive framework, rather high in structure and ornamental.

**Lines:** Generally straight and rigid. Chairs were often so high that it was necessary for the occupant to employ a footstool. Tables were high with terminals of lions' heads.

**General Appearance:** Stiff and masculine. The furniture of the Assyrians, Persians and Chaldeans reflect very accurately the attitude of a desire for power and influence. The legs of the chairs often have bulbous turnings in a way resembling our spool furniture.

**Structural Details:** Much of the furniture of this period was made of bronze and metal. The construction, however, indicates that the design would be better adapted to the use of wood. Massive and large, it gave the impression of masculine rule and power.

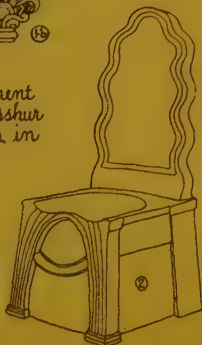


① Part of an Assyrian Bronze Throne (about 880 B.C.) this throne had no back. Note the lion's feet and bull's head. The head of the lion and ram was also used, also the feet of the bull, in the decoration of furniture. Below is the Assyrian winged globe - similar to the winged sun of the Egyptians.

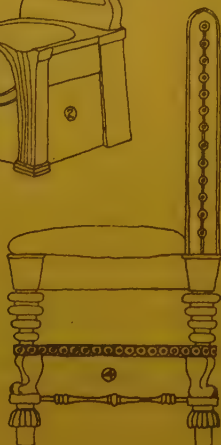


①b Conventional treatment of the tree sacred to Asshur used by the Assyrians in ornament.

② The throne of Minos at Knossos - Crete (15th Century B.C.) in stone - Compare its general contour with our hall chairs.



④ The throne of King Xerxes (6th Century B.C.) the Persians too - used the feet of animals as a support.



**Decorative Details:** Animal and human figures were the principal decorative motifs. Although the pine-cone is also used, the Assyrians favored lions' paws, and bulls' hoofs as terminals. When the square legs were used on the chairs or tables, inverted pine-cones made up the base. Ivory and precious metals were used profusely as inlays on the royal furniture.

**Woods:** Cedar, ebony, teak and walnut.

**Specialties:** Tables, couches, chairs or seats, stools. Royal furniture was the only furniture decorated or embellished.

**Modern Adaptations:** Small stands, night stands, foot-stools and other novelty furniture is often made in the style of this period.

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## CHAPTER III

### GRECIAN

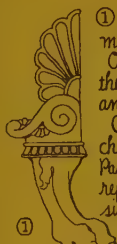
**Place:** Greece and surrounding islands in the Aegean and Mediterranean Seas. Also the coast cities of Southern Italy and Sicily.

**Time.** Circa 1200 to 300 B. C.

**Type of Civilization:** From tribal groups to artistically the most advanced ever recorded before or since the time. Early government despotic, later a form of democracy.

**Sources of Inspiration:** Natural laws, philosophy, and science.

**Government and Conditions of the Times:** Early Greece was ruled by "tyrants", which does not, however, imply that they were tyrannical. The term today would apply to the modern one man dictator, as in Italy. Following this rule, particularly in Athens, was developed a form of democracy under which the country flourished and the arts advanced. Pericles, 490-425 B. C., gave an impetus



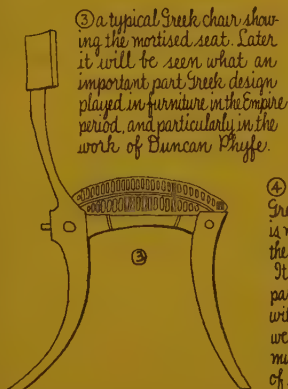
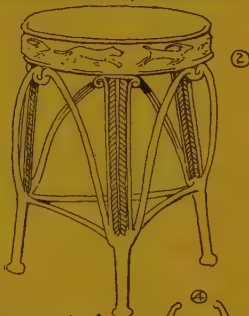
① a chair leg in marble.

Observe the use of the Greek scroll and the palmette.

Compare with the chair leg of Fig. ① Page 119 and note Greek refinement of a similar motif.

② a small Greek bronze table from Cyprus. Note the volutes at the top of the legs.

Around the band at the top are modeled stags pursued by lions. (The original is at the Metropolitan Museum)

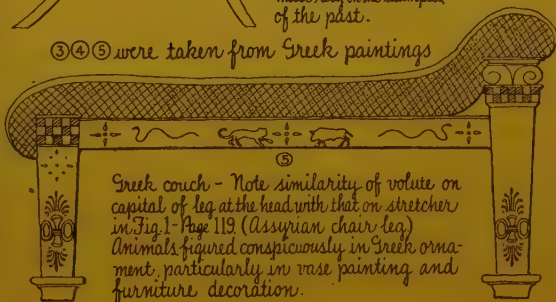


③ a typical Greek chair showing the mortised seat. Later it will be seen what an important part Greek design played in furniture in the Empire period, and particularly in the work of Duncan Phyfe.

④ an example of a Greek lyre. The lyre too is much in evidence in the furniture of later periods. It is only when we compare the work of one age, with that of another that we realize how much we must rely on the examples of the past.



③④⑤ were taken from Greek paintings



Greek couch - Note similarity of volute on capital of leg at the head with that on stretcher in Fig. 1 - Page 119. (Assyrian chair leg) Animals figured conspicuously in Greek ornament, particularly in vase painting and furniture decoration.

to what is called the Golden Era of Greece, from which we have derived most of what is known as the "classic" in the arts. During this period the arts were influenced by such noted men as Solon, the law giver, Pythagoras, Euclid, Plato, Socrates, Aristotle, scientists and philosophers; Ictinus, Pheidias, Praxiteles, architects and sculptors; Sophocles and Euripides, dramatists and writers and by the amazing skill of great numbers of the population. While the period of Greek supremacy was short it has never failed to influence all art of subsequent times. The urge of all Greek art is seeking for the truth as revealed in nature's laws. It is in no sense symbolical but purely representative and formal. Its principal application to furniture is in structural proportion and in the decorative scrolls and frets (See page 97). Greece declined with its conquest by Alexander and subsequent alliance with the Roman Empire.

**Architecture:** Severity of a pure type.

**Lines:** Slender and graceful.

**General Appearance:** Wooden furniture of the Greeks was often decorated with glass, ivory and metal inlays. Wooden beds were sometimes ornamented in tortoise-shell and veneers of fine woods. Chests had already made their appearance as a household utility, used for the purpose of storing clothes and linens. Smaller chests formed containers for jewels, toilet requisites, papers and other articles. Litchfield describes the chest in which Cypselus of Corinth was concealed as "made of cedar, carved and decorated with figures and bas-reliefs, some in ivory, some in gold or ivory part gild and inlaid on all four sides and on the top." Painting, carving, turning, inlaying, incrusting with metal, ivory and other precious stones were favorite methods of decoration.

**Structural Details:** Greek chairs had upright backs, the frame of the seat often mortised to the legs. Couches, accommodating three guests were much in evidence. The Greeks kept to the mystical figures of three and nine, three for the Three Graces and nine for the Nine Muses. Because the Greek reclined when eating, the tables were naturally built low and the tops did not project from the bases. The couches were practically elongations of chairs and thrones.

**Decorative Details:** As has been stated, Greek art and decoration was simple and pure. However, furniture highly decorated, made of bronze, damascened with gold

and silver and often upholstered with silken cushions, was customary in the homes of the rich during the last three centuries before the beginning of the Christian era.

**Woods:** Olive, cedar, cypress, yew, oak, box and ebony.

**Specialties:** Couches, chairs, thrones, pottery, braziers, stools and tables. Few authentic pieces of Greek furniture survive, but because of their reverence for the dead and the practice of furnishing tombs in the manner of the living, excellent pictures of domestic life in Greece have been preserved to us. Friezes and vases, painted to interpret Greek domestic life, are particularly useful in studying Greek furniture.

**Modern Adaptations:** Garden furniture in marble or other stone; now and then a library table; couches, chairs or stools, ferneries and occasional tables.

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### CHAPTER IV

#### ROMAN

**Place:** Italy and Europe below the Rhine and what is now Russia; Asia to the Arabian desert; Egypt and North Africa.

**Time:** 600 B. C. to 400 A. D.

**Type of Civilization:** Militant; highly developed in the arts, government, literature and science. Culmination of preceding civilizations.

**Sources of Inspiration:** The Roman Empire borrowed or acquired all that it considered best in the arts, sciences and development of her conquered tributaries. The Etruscan is the only distinct art germane to Italy. All these influences formed a composite known as the Roman arts.

**Government and Conditions of the Times:** The history of Rome, as affecting her arts is divided into two principal periods. The period of the Republic, from the organization of tribal communities in the Fifth and Sixth centuries

B. C., to the advent of Augustus, Emperor, 29 B. C., and that of the Empire, from Augustus to its decline during the Fourth century A. D. It was during the latter period that the furniture arts reached their fullest bloom as influenced by the brilliance of the times. Basically Greek, furniture acquired a more highly recognized position in the homes of the wealthy. Many of the Roman emperors encouraged the domestic arts, although the position for centuries was principally a military one. Likewise, furniture received the attention of the rich and of political representatives of the Empire in different centers of its vast domain. In this period begins the influence of Eastern civilization in Western Europe as far as England. For several hundred years there was a distribution of Roman art to all parts of the then civilized world.

**Architecture:** Similar to Greek in structure, with a tendency toward more elaborate decoration. It must be remembered that the Roman created nothing. He copied and borrowed from nearly every design and work of art and to these added richer embellishment to suit his tastes.

**Lines:** Same as Greek furniture. The Roman added the round arch.

**General Appearance:** Roman furniture shared the rigid construction and rectangular form of Greek furniture—perhaps because early Roman or Etruscan furniture was first made by Greek craftsmen. Bronze work developed to a high degree during the rise of Roman power. Many pieces of furniture were made entirely of bronze and some of bronze combined with marble. Plastic figures and plant ornamentation formed interesting themes for decoration and these were always executed with the finest taste and accuracy. The Roman, ever interested in satisfying his comfort and luxurious taste, had his furniture richly upholstered with the vivid colorings of the Orient. Silks, velvets, and fine linens constituted the coverings for cushions, chairs and couches.

**Structural Details:** The table tops were round, oblong or square, placed upon central supports of three or four legs. The tops of tables appear to be veneered. The Roman made four types of chairs: the *curule* having a square seat and legs crossed into an X-shape; *bisellium* a double seat; *solium* used only by the head of the household, and the *cathedra*, a chair for the exclusive use of women. The *bisellia*, found in Pompeii, were really couches or settees, varying in length from five to six feet.





- ① The Romans carved the arms and legs of Chairs and Tables to represent the legs and feet of animals. They often, however, carried the theme further in the use of animal bodies, sometimes grotesquely patterned to convey, perhaps, the idea of fear.

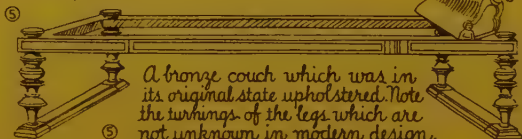
- ② The acanthus leaf was one of the favorite motifs of decoration with the Romans. Here it is executed in graceful and natural detail; the veins being carefully chiselled and correctly reproduced



- ③ The Roman chair generally had a concave back (excepting of course, when it was distinctly a stool) which fit the contour of the body and gave some semblance of comfort. Most of the Roman furniture still in existence is of bronze or some type of stone. This chair is stone.



- ④ Students who are familiar with furniture designed by the Adam Brothers of England will recognize this scroll. It was this type of decoration that northern European countries profusely borrowed from Roman Ornamentation.



- ⑤ A bronze couch which was in its original state upholstered. Note the turnings of the legs which are not unknown in modern design. The Roman was, perhaps, the first to use the stretcher although it is not known ever to have connected four legs. Couches of this type were also used as beds at night

The frames were generously carved and decorated, the terminals often in the form of mule and horse heads. The beds and couches resembled those used by the Greeks. The beds had head-boards, foot-boards, and pillow rests. They were termed *lectus*. The couch used when dining was called *lectus tricliniaris* and was built lower than the sleeping bed. A ledge on which the occupant might rest his left arm was fastened to the head. The cupboards, called *armaria*, originally served as containers for arms and weapons of warriors. From this beginning gradually developed a chest for general storage, sometimes known as an "armorie."

**Decorative Details:** Roman furniture was elaborately embellished. Carving, painting, gilding, veneering with many fancy and highly figured woods; engraving, damascening, inlaying and graining were employed. Precious and semi-precious stones were used profusely. Bronze, marble, silver, gold, wood, and ivory were some of the materials used in decoration.

**Woods:** Cedar, pine, ash, beech, elm, olive and bird's-eye maple were used for construction and carving; box, ebony, holly, terebinth, cherry, etc., were used in inlays.

**Specialties:** Tables, both large and small, chairs, stools, footstools, settees, benches, and incidental and occasional pieces which were used principally for decoration.

**Modern Adaptations:** Lamp-bases, ferneries, wrought-iron and bronze chairs and tables, marble-topped tables, chaise-longues and day-beds are often modern adaptations of Roman furniture. However, furniture designed after this period finds an appropriate place only in club rooms, halls, hotel lobbies, but is seldom gracefully used in the home.

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*The Book of Decorative Furniture*, Vol. 1. Edwin Foley.  
*Illustrated History of Furniture*. Frederick Litchfield.  
*Studies in Ancient Furniture*. Louise Caroline Ransom.  
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### CHAPTER V

#### BYZANTINE AND ROMANESQUE

**Place:** Western Asia, Egypt and Eastern Europe.

**Time:** Circa 476 to 1200.

**Sources of Inspiration:** The period covered by the Byzantine and Romanesque style of arts was generally

devoid of inspiration, particularly in Europe. In the Byzantine Empire, furniture objects began early to take on ecclesiastical forms. European Romanesque furniture was largely a debasement of Roman furniture, though bearing little, if any, resemblance to it. Animal bodies, usually out of proportion, served as supports. Both Byzantine and Romanesque art were notably influenced by ecclesiastical thought.

**Government and Conditions of the Times:** In the Byzantine Empire, the government remained much like that in Rome, a semi-hereditary monarchy whose supreme heads called themselves Caesars. The people were absolutely subject to the will of the emperor and the general government was military. The gaudy brilliance of wealth and nobility was contrasted by the abject poverty of the masses.

Europe, during the Romanesque period, was split into small principalities which were ruled over by petty kings, dukes and counts. The feudal period had not yet taken root. Charlemagne, in the latter part of the Eighth and the first part of the Ninth centuries, began to restore order and made an effort to patronize the arts, but his successors failed to keep up the attempt and devoted themselves principally to war and conflict. Local government was partly tribal and partly adherent to scattered authorities.

**Architecture:** Large and heavy; furniture of the times being mainly used in cathedrals and in the residences of the royalty.

**Lines:** Rectangular.

**General Appearance:** Byzantine furniture was generally large in size and profusely ornamented. The carvings and inlays were crowded into the large surfaces on chairs and chests. Romanesque furniture, a debasement of Roman craftsmanship, reflected the barbaric and war-like inclinations of the people of the times. Carved animals with grotesque forms and faces, and human beings bending in an attitude of either worship or subjugation, were the principal themes in ornamentation.

**Structural Details:** There are few pieces of furniture preserved to us from the Byzantine and Romanesque periods. The Chair of St. Peter, in the Church of St. Peter at Rome, which is an excellent example of Byzantine art, shows that the furniture was profusely carved and inlaid. Heavy and cumbersome in size, it was made not to be removed from the place it was stationed. Romanesque

chairs were often triangular in shape, some having high arms, some low and others had no arms at all. Gable-roofed hutches or cupboards formed an important part of Romanesque furniture.

**Decorative Details:** Byzantine decoration was generally of carving or inlay. Human figures, for the greater part, representing ecclesiastical persons of the Christian belief, formed a large portion of the decoration. Ivory was used for inlay.

The predominant decoration on Romanesque furniture was the arch, supported by turned posts and spool work. Gable-roofs on chests and cupboards were decorated in patterns of geometrical carving. Bronze and iron hinges frequently reached over the whole surface of a door. Large animal heads with rings in their mouths were also a form of embellishment on Romanesque furniture.

**Woods:** Oak, acasia and other European and tropical woods.

**Specialties:** Chests, chairs, benches and ecclesiastical and royal furniture.

**Modern Adaptations:** These styles do not adapt themselves for use in modern domestic furniture. The Romanesque style, however, has recently been revived in church furniture and for formal settings in clubs and public reception rooms.

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*The Book of Decorative Furniture*, Vol. 1. Edwin Foley.  
*Illustrated History of Furniture*. Frederick Litchfield.  
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*Decorative Furniture*. George Leland Hunter.  
*Furniture*. James Ward.

## CHAPTER VI

### ENGLISH LATE GOTHIC AND EARLY TUDOR

**Place:** British Isles.

**Time:** 1180-1509.

1st, Pointed or Early English Gothic, 1180-1307.

2nd, Pointed or Decorated English Gothic, 1307-1377.

3rd, Pointed, Late, or Perpendicular English Gothic, 1377-1509. (Edwin Foley).



① The best exemplification of Byzantine furniture is found in the Chair of St. Peter, Rome. Note the Greek and Roman influence on the Corinthian pillar on the back.

Figures of Ecclesiastical characters form a prominent part of the decoration.



② & ③ Are types of decoration and interlaced ornament frequently found on Byzantine furniture.

④ Shows the treatment of animal form in a setting of foliage.

⑤ The historic Coronation chair of Edward I is a fairly true type of Romanesque furniture. Note the grotesque terminals and the gable shaped back. It is made of oak. The carved lions upon which the chair is mounted, while of comparatively modern make are characteristic with Romanesque furniture.



⑥ Romanesque interlaced ornament as used frequently both on architectural friezes and furniture fillets, showing the strictly formal leaf work peculiar to the Romanesque style.



**Sources of Inspiration:** The history of English furniture before the Renaissance and the causes of its inspiration, are not visibly continuous as in continental Europe where furniture either preceeded or followed the trend of political and economic events. Early English furniture, though crude and unwieldy, was influenced by many and varying agencies. The basic taste of the Englishman retained even at this time a combination of Roman, Anglo-Saxon and Norman influence. After the Thirteenth century, when, through war and political contacts, England increased her affairs with continental Europe, there was a marked effect upon its furniture of the styles which then prevailed on the continent. This notwithstanding, Early English furniture of known historic designation favors the Dutch, Flemish and Germanic trends. In the Fourteenth century, however, when considerable portions of France were in the possession of England, there came into English furniture a noticeable French and Italian identity. The proverbial conservatism of English taste, however, did not permit of either a direct copy or even a modification of Southern European ideas. This was not entirely from lack of desire but because the English were primarily stonemasons and hewers of timber and had neither the skill nor the artistic understanding necessary to keep pace with the classical and more cultured arts of Southern Europe.

In the respect, however, that the temple and the church has always been a forerunner in the expression of man's tastes, England followed and it may be said, excelled her European neighbors in a full and beautiful expression of the Gothic style. In her church architecture and furnishings and later in Tudor-Gothic furniture, this appreciation of the Gothic becomes more marked and opened the way for an English Renaissance beginning with Henry VIII and closing with the reign of Elizabeth.

**Government and Conditions of the Times:** As a background for historic English furniture, particularly as expressing the thoughts and tastes of English people, the reader is referred to Narrative of Furniture.

"The last quarter of the Fifteenth century," says Foley, "witnessed political and social changes greatly affecting decorative furniture. Feudal England, monk-ridden, noble-ridden and ever at war with her northern neighbor, ceased her long civil struggle to enter, bereft of continental possessions, upon an era under the Tudors, in which the power of the monk and noble was to be diminished, that

of the monarch to increase, and the printing press,—to lay the foundation for a greater domination than king, priest, or noble had ever possessed!"

**Architecture:** Heavy, cumbersome and ecclesiastical.

**Lines:** Perpendicular and rectangular.

**General Appearance:** The chest or "hutch" seems to be the most popular piece of furniture previous to the Tudor period. These hutches were used for seats and benches by day and beds and couches by night. They stored the household valuables and when the families moved from place to place, as was often the case in those warlike times, the hutches served as trunks. The earliest of these chests date from the middle of the Thirteenth century. They were roughly constructed, the tops nearly always opening on pin-hinges, that is, on two pins fixed through the top and socketed into the uprights of the sides. The front was a solid board of oak of great width.

Most of the furniture before 1475 was placed in churches and made by monks and priests, although Chaucer says there were "grete fraternities" among the various craftsmen of the day. The hutches and cupboards were large, and when decorated were generally embellished with the linen-fold pattern. There is some trace, however, of geometrical designs on some of the early chests. Huge wrought-iron hinges, nails, locks and keys were placed on the hutches to give them greater strength and solidity. John Evelyn is quoted as saying "Nothing was movable save joint stools." Tables were for the most part built on trestles.

**Structural Details:** There is an early type of chest described by Herbert Cescinsky and Ernest R. Gribble in their book on "Early English Furniture and Woodwork, Vol. II", "which shows the woodworker copying the methods of the stonemason. This is the dug-out kind, of which several examples exist, where the chest is hollowed out and fashioned from one great piece of timber. Very few have survived, nor is this method calculated to produce a chest which is likely to remain for many years without falling to pieces, owing to the cracking and warping of the timber, which could not possibly have been seasoned before using." Heavy iron bands were criss-crossed around the smaller chests, giving evidence that they were used to protect the family valuables from theft.

Joint stools were used to support tables and coffers,



while benches were made to sit upon. Decorated chairs with arms were used only in churches as seats for the clergy or as choir stalls. The X-shaped chair was in use during the Thirteenth century, as well as triangular seats. The latter were brought from the courts of Byzantium by the Varangian guard.

**Decorative Details:** The linen-fold pattern originating from the folded napkin which was placed as a covering of the chalice at the consecration of the Host in Catholic ritual became a favorite type of decoration for chests and chair backs. This pattern seems to have originated on the continent, coming to England through Flanders. Parchment scrolls, rolled on a rod, were also used to embellish the crude Gothic furniture of the period. During the latter part of the Fifteenth century the Tudor rose was used frequently, but never gained the popularity of the Gothic tracery patterns, the pointed arch or the linen-fold.

As a rule, the hutches were not ornamented prior to the Tudor period. Some were enriched with heraldic or other paintings. One chest characteristic of Fourteenth century decoration from Dersing Church has a completely carved front board. This chest is the exception, rather than the rule. The carving represents a winged angel holding a scroll of Matthew. The likeness of Mark, Luke and John are shown on the other sides of the chest.

Flamboyant Gothic ornamentation was felt in English furniture during the middle of the Fifteenth century. The constant wars carried on by France and England during this time brought to England many French and Burgundian chests, which were redecorated and recarved to suit the Englishmen's taste. The exchange of artistic ideas, however, could not help but influence English decoration to some extent.

Inasmuch as this period takes us into the beginning of the Sixteenth century, the "Romaine" work can authentically be mentioned. This was a type of English adaptation of the Renaissance spirit and made its first appearance at the end of the Gothic period in the British Isles. It represented carved heads of royalty framed in rounded or arch-shaped panels. The heads were usually decorated with the peculiar style of headdress characteristic of the period.

Practically every piece of furniture was painted during the early part of this period, although during the latter part many were left untouched by stain, paint, oil, wax, or polish.





① Oak table and chest combination of Early English Gothic design. Large linen-fold decoration, the center panel forming a door. Dated about 1485



② Linen-fold was one of the principal decorations on Early English Gothic furniture.



③ shows a decorative treatment of the linen-fold and ④ is a similar embellishment from the parchment scroll.



⑤ Late English Gothic chair. Note the Romaine carving on the panel below the seat and the upper left panel. This chair is dated by Macquoid at about 1535.

⑥ Panel from a Gothic cupboard showing conventional tracery frequently used on Early English furniture.



**Woods:** Principally oak, although elm and beech were used to some extent.

**Specialties:** Cupboards, chests, hutches, arks, trestle tables, benches, joint stools, chairs, and coffers.

**Modern Adaptations:** Recently there was a revival of Early English furniture made in exact replica of the original. This is favored for English beamed and paneled dining rooms, hunting lodges, summer homes and wherever a primitive atmosphere is hoped for.

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*Early English Furniture and Woodwork*, Vol. II. Herbert Cescinsky and Ernest R. Gribble.

*An Introduction to Old English Furniture*. W. E. Mallett.

*The Book of Decorative Furniture*, Vol. I. Edwin Foley.

*The Dictionary of English Furniture*. Percy Macquoid and Ralph Edwards.

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## CHAPTER VII

### CONTINENTAL GOTHIC

**Place:** Europe.

**Time:** Primary, 1223-1314.

Rayonnant, 1223-1422.

Flamboyant, 1422-1453.

**Sources of Inspiration:** Almost wholly ecclesiastical. The art first developed in the Ile de France in the building of churches and spread with remarkable rapidity throughout all of Europe and England. It is distinguished by the long, narrow and tapering arch, best recognized in the windows of Gothic churches.

**Government and Conditions of the Times:** The government of Europe during the Gothic period was entirely feudal. It was held together by monarchical rulers and by the Holy Roman Empire. The period was marked by a constant struggle between spiritual and temporal powers. Living conditions among the people were at this time at the lowest ebb. While the nobility was better provided with the material things in life than were the common people, it enjoyed few comforts and little, if any, inspiration from the use of furniture.

**Architecture:** Tall, slender, and rectangular.

① French Gothic cupboard, upper part showing distinctive use of tracery and carving in low relief.

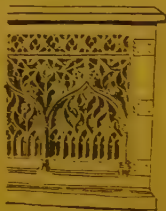
The back of the lower part of this cabinet is uniformly covered with linen-fold carving, making the whole a very artistic expression of completeness.



② German chair from the late fifteenth century. This chair, though apparently simple in construction and decoration, is characteristic of the Gothic interpretation in Germany and Northern Europe. Note the long and pointed "church window" sides and similar cut-outs. The quatrefoils are distinctively Gothic.



③ A striking example of French Flemish Gothic as exemplified in canopy over a large double seated chair.



④ Section of Spanish Gothic chest, showing extensive use of arches and tracery.



⑤ Tracery patterns characteristic of Continental Gothic ornament

**Lines:** Perpendicular with a profuse use of tall arches as found in Gothic church furniture and architecture.

**General Appearance:** Little furniture appeared during this period elsewhere than in the monasteries and church edifices. The strictness of church discipline influenced furniture in making it formal rather than comfortable. The chairs were rigid and the chests and coffer were massive and almost immovable.

**Structural Details:** Wherever Gothic influence was felt it found different interpretation and execution. Generally, the wood used to make furniture was cut thick and fastened together with heavy corner posts and crossboards. The sides of chests were attached to strong frames made to endure. Late Gothic furniture took on a little more structural refinement when chests and dressoirs became more common. The trestle table came into being, some even having drawers. The furniture of the times was neither inspiring nor comfortable in structure or decoration.

**Decorative Details:** Early Gothic decoration held closely to the use of the pointed arch, and to the representation of illuminating rays, carved or chiseled into surfaces, from which it received the name Rayonnant. During the close of the Fifteenth century, however, effort was made to produce more ornate embellishment. This type of furniture is known as Flamboyant Gothic. The linen-fold pattern, which later became very popular in England, was often used on door-fronts and chest panels. This type of ornament was particularly popular in North European furniture. Diapered ornament in cross-shaped forms was often used. With the furnishing of the homes of feudal lords and the employment of "house craftsmen" a greater development of decoration was brought about. Animal, leaf, vine and floral designs were added, the botanical embellishments intertwining their stems and leaves through tall and slender arches. The furniture continued to retain its heavy and massive architecture, allowing much space for decorative execution.

**Woods:** Oak in Early Gothic; fir, pine, maple, ash, and other softwoods, in Late Gothic.

**Specialties:** Chests, coffer, cupboards, chairs, dressoirs, trestle tables, wash-stands, settles and hutches.

**Modern Adaptations:** Because of its ecclesiastical background, Gothic furniture adapts itself best to church surroundings. However, its austere lines make it attractive

for use in club rooms, offices, reception halls, hotel lobbies, and other public buildings.

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*The Book of Decorative Furniture*, Vol. I. Edwin Foley.  
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*Gothic Furniture*. Augus Charles Pugin.

*Ancient and Modern Furniture and Woodwork*. John Hungerford Pollen.

## CHAPTER VIII

### ITALIAN RENAISSANCE

**Place:** Italy.

**Time:** The Renaissance. Early or Free, 1400-1500; High or Classic Renaissance, 1500-1580; Renaissance Barocco and Decadenza, 1580-1800.

**Sources of Inspiration:** The Renaissance arts were born in Italy, and the first Renaissance furniture that can strictly be defined as coming within this definition was made in the Italian cities. Leonardo da Vinci and Raffaello, who may be said to have overthrown the Byzantine-Gothic school, were probably more than other renowned artists of the time responsible for the new thought in the expression of all arts, which became generally known as the Renaissance, or "awakening". As applied to furniture, the use of the Renaissance arts may be called a liberal employment of natural objects, harmoniously grouped in architecture, sculpture and painting. It was a loosening of the restrictive bans of Greco-Roman and Byzantine design. While the Renaissance is basically Greek, the liberty it allowed became a rich inspiration for furniture design and ornamentation. The use of the human body, of flowers, trees, musical instruments, such as the lyre, and the harp; vines, vases, sculpture heads and other common articles having form and beauty, were mustered into a harmonious whole during this remarkable period. There is little good furniture in use today that does not reflect the beauty and freedom which this style presented to the home arts.

**Government and Conditions of the Times:** The Renaissance arts appeared toward the close of several hundred years of internal strife among the principalities of

Italy. When the dukes and counts were not fighting among themselves they temporarily joined their forces against common enemies from the outside. The economic conditions of the peoples of Italy were not as unfavorable, however, as among the people of Northern and Western Europe. The people as a whole seem to have retained an appreciation of the artistry of their Roman forbears and were able even in their comparative poverty to understand and appreciate true art. It was the growing prosperity of the independent Italian cities whose merchants were engaged in profitable trade with all parts of Europe, Asia, and Northern Africa that signalized the coming of the Renaissance. It was largely upon this prosperity and wealth that the development was founded. Italy being the seat of the Holy Roman Empire obtained a constant and growing inspiration from her ecclesiastical atmosphere, which finds definite form in the structural and decorative arts of the Italian Renaissance period.

**Architecture:** Structurally Greek with Roman modification. The style is generally recognized by its straight lines and classical decorations.

**Lines:** Low, straight, and well proportioned.

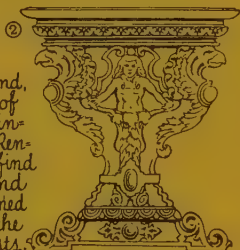
**General Appearance:** Italian Renaissance furniture, while beautiful, is essentially palatial rather than comfortable and warm. Its fine architectural proportions possess dignity rather than charm, all being tempered with a notable restraint. This may seem contradictory to the general freedom of the Renaissance arts, which is explained by the fact that furniture at that time was more artistic than utilitarian. Bodily comfort did not for centuries take its place with the freedom of artistic execution.

**Structural Details:** The chairs of the Italian Renaissance period were rectangular and straight; the tables large and turned, with terminals of lion's paws. Some had plain feet, others were carved blocks. Many of the chests, cupboards, dressoirs, etc., rested on the floor without feet. The arms of the chairs were generally straight from the back, being plain or rounded under at the end. Heavy underbracings were also a characteristic of this period. Mouldings, which were used on almost every piece of furniture, were delicately executed and gave a perfect balance to the piece on which they were placed.

**Decorative Details:** Carving in low relief was the chief form of decoration, conventionally executed and



① Ornamented chair typical of the free Italian Renaissance period. The use, in this period, of extreme ornamentation and the frequent combining of human figures with scrolls and foliage renders this style of furniture easily defined.



② In this table-end, characteristic of the Venetian interpretation of Renaissance we find

a close adherence to Greek and Roman classic thought, combined with a freedom of execution at the hands of the Renaissance artists.



③ Plain Italian Renaissance bead



③A Enriched Italian Renaissance bead



④ Two interpretations of the echinus, or egg and dart bead



⑤ The Guilloche

Interlaced Italian Renaissance fret. ⑤ + ⑤A



⑤A The Palmette band



The acanthus leaf originally Greek has received more interpretations than any other motif in the arts. Here are four distinct expressions of the acanthus leaf. ⑥ and ⑧ are natural leaves, and ⑦ and ⑨ are Renaissance treatments.



restrained in feeling. The motifs for the carver's knife were acanthus leaves, scrolls, friezes, fluted columns, and urns. Lyres often formed the supports of tables. Velvet upholstery of a crimson color, heavily fringed and decorated with tassels and flat brass nails were added decorations to this beautiful furniture. Gilded and painted furniture found its place in some of the Italian cities, adding a richness to the general effect.

**Woods:** Primarily, walnut.

**Specialties:** Tables, sideboards, cabinets, desks, chests, stools, chairs and benches.

**Modern Adaptations:** Is used in rooms where the finest furniture is in demand, such as home libraries, public parlors, reception rooms, etc.

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*The Book of Decorative Furniture, Vol. I. Edwin Foley.*

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## CHAPTER IX

### FRENCH RENAISSANCE

**Place:** France.

**Time:** First period 1453-1515, covering the reigns of Louis XI, Charles VIII, Louis XII. Second period, 1515-1547, covering the reign of Frances I. Third period, 1547-1610, covering the reigns of Henry II, Catherine de Medici and Frances II, Charles IX, Henry III, Henry IV of Navarre.

**Sources of Inspiration:** Technically, Italian. More generally the result of a welding together of semi-independent provinces, duchies, and marquisates under a more stable monarchical government. Serfdom and feudal oppression at this time gave way to greater personal liberties. An intermingling of the royal houses of Italy, Spain, and England established a closer French relationship with other European countries. The church continued to inspire



① Table end from French Renaissance, illustrating the elaborate carving of the period, which was the principal type of decoration. The lyre, as evolved from Greek and Roman classic design, is herewith amplified through Renaissance treatment



② A French Renaissance carved chest having perfect distribution of ornament highly expressive of the Renaissance period



③ Chair from the French Renaissance period showing a vanishing Gothic influence.



④⑤ and ⑥ are details of Renaissance ornamentation taken from French furniture of the period.

⑦ Detail of large table terminal showing use of scroll and foliage in French Renaissance treatment.



artists and craftsmen. Some of the most notable examples of French Renaissance furniture have come from monasteries, abbeys and churches. The style also contains a slight presence of the Spanish due to the prominence of Charles V, whose court, during a part of this period, influenced the customs of practically all of Europe.

**Government and Conditions of the Times:** At this period the courts, not only of France, but of other European countries began materially to influence furniture styles. A steady growth of prosperity encouraged the copying by a greater number the furniture of the wealthy and it is from this period that much of the artistic and quaint furniture in vogue during 1926 and 1927 found its origin. Competition both in structure and decoration of furniture was encouraged through the employment by royal houses of furniture designers and craftsmen who vied with one another in perfecting their product.

**Architecture:** Resembling the Italian Renaissance. The furniture of France was inclined to massiveness with large areas for decoration and enrichment.

**Lines:** Straight or rectangular.

**General Appearance:** French Renaissance furniture retained some of the Gothic in both construction and decoration. It was heavy, richly carved and embellished.

**Structural Details:** The arms of the chairs were generally straight and rectangular, resembling the Gothic. The legs were straight but turned. The backs of the chairs were throne-like in their height, the solid surfaces being ornately carved.

**Decorative Details:** Carving was the principal decoration. The motifs were classical but had more freedom and naturalness than the motifs of the Italians. The acanthus leaf with Renaissance modification appeared on almost every piece of furniture. Other motifs were sphinx, lion heads, human heads and figures. Pendant ornaments characterized French Renaissance furniture and formed one of the striking departures from the furniture of the Italians.

**Woods:** Walnut and oak.

**Specialties:** Tables, draw-top tables, chairs, chests, seats, dressoirs, armoirs or cabinets, beds.

**Modern Adaptations:** Wherever ornate and beauti-

fully decorated furniture fits with the architecture of a room, French Renaissance furniture finds an ideal setting.

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## CHAPTER X

### SPANISH RENAISSANCE

**Place:** Spain.

**Time:** 1475 to 1725. Early Renaissance and Plateresque, 1475-1525; Plateresque, Middle Renaissance, Herrera, 1525-1650; Late Renaissance, Churriguera, 1650-1725.

**Sources of Inspiration:** Spain was a constantly warring nation. For centuries it was torn by internal strife and outward foes. Consequently, the furniture that followed in the wake of the Renaissance throughout Europe, as interpreted by Spanish craftsmen, retained a military influence. Masculine in character and line, decorated with Moorish and Italian ornament, Spanish furniture achieves an individual style that can be compared to that of no other country in Europe. The ecclesiastical influence did not seem to affect Spanish furniture as much as in other European countries, although much of it was made in the monasteries and abbeys of the country.

**Government and Conditions of the Times:** Nearly one-third of this period was under the rule of Charles I, of Spain, better known as Emperor Charles V, of the Holy Roman Empire. His office as emperor drew Spain into the political turmoils of Europe from which, on the other hand, she derived an abundance of glory and cultural advancement. Charles came from Flanders and was surrounded by Flemish favorites. This accounts partly for

the Gothic influence upon early Spanish Renaissance furniture. Charles was succeeded by his son, Philip II, 1556-1598. Philip's second marriage to Elizabeth, daughter of Henry II and Catherine de Medici (Italian house) accounts somewhat for the rapid advance of the Italian influence in Spanish arts of the time. The conquest of the Moors had just been completed before this period, but the Moorish influence is evident in practically all Spanish furniture to this day. The rule of Spain continued under the same dynasty, Philip III, 1598-1621 and Philip IV, 1621-1665, when the country lapsed into a state of exhaustion from which it has not yet recovered.

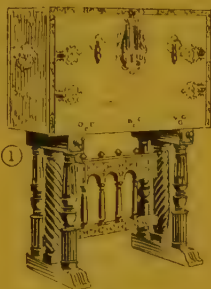
**Architecture:** Somewhat large and dignified. Rich in perspective and detail.

**Lines:** Generally straight, though not as severely as in the Italian and broken by rectangular and curved contrasts.

**General Appearance:** Rich, dignified, colorful. What we would term "romantic" because of its quaint colorings.

**Structural Details:** The laws of the country required strong and durable construction. Legs of chairs were straight, baluster or spiral turned, carved or grooved, and joined with ornate stretchers of similar construction. Metal stretchers were frequently used. Table legs, when not turned, were of the trestle type, descending toward the floor in undulating lines. These were also joined with heavy wood, or iron braces. The feet of chairs and tables covered a wide range of structural design, ranging from a continuance of the leg to the floor to the use of natural and conventional forms, such as pear, paw, scroll, turned, bulb and bun-shaped and broad leaf. Backs of chairs were long or broad, the former terminating in Gothic curves, the latter squared, with waving or ornate top-pieces. Secure mortise jointing prevails in all structural combinations.

**Decorative Details:** Fine, close and occasionally chipped carving. Ornate metal mounts, heavily painted or gilded and frequent use of gilt nails. Unique and frequent use of inlay in large varieties in which silver, brass, shells, bone, and some ivory were employed in Moorish and arabesque patterns. Enrichment of surfaces by the use of geometrical mouldings appears in this style. Arcades of spindles, from the architecture of the time, appear on backs and in relief on surfaces. Red, on the order of the modern "Persian Orange" and green were



① Spanish vargueno, a cabinet secretary developed by the Moors and characteristic with Spain only. It embodies many distinct features of Spanish furniture design. Particularly attractive are the large and profusely embellished metal mounts, usually Moorish in design.



③ ④ and ⑤ characteristic feet or leg terminals used in Spanish Renaissance furniture.



② Type of Spanish bed-post developed during the late Renaissance period.



⑥ Geometrical arabesque ornament in metal used on Spanish chests and varguenos.

⑦ Spanish Moorish scissor chair decorated with fine geometrical inlay known as "certosina" work. The structure of the chair is partly Greco-Roman and partly Renaissance. The decorations are largely of Moorish origin.

⑧ Ornamental wrought iron as used on backs of Spanish chairs and for stretchers. The student will note the rich but simple treatment of the scroll and leaf.



the predominating colors in velvets and fabrics used for upholstering or "stretching" over some types of the furniture of this period. Fringes and embroidery were worked into furniture coverings in rich profusion. The use of Cordova leather in rich brilliance is one of the outstanding features of the style.

**Woods:** Oak, walnut, cedar, chestnut, cypress and pine.

**Specialties:** Cabinets, containing drawers and lockers, mounted on supports, or on a cabinet base, appear during the Sixteenth century. They are called *varguenos* and are distinctly a Spanish creation. Noted particularly for their inlay, carving and panel moulding. Upholstered benches and chairs and writing desks.

**Modern Adaptations:** Spanish architecture and decoration, with a strong Moorish influence, have been used in modern furniture for the past 12 years, reaching the peak in 1925. Present tendencies are toward a modification of Spanish styles along the Gothic and Renaissance. French provincial ideas were introduced in American Spanish type furniture in 1927.

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## CHAPTER XI

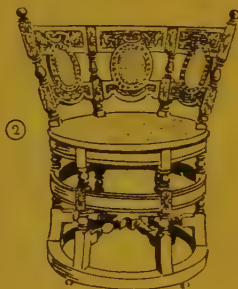
### NETHERLANDS RENAISSANCE

**Place:** Netherlands and Flanders (the latter now Belgium).

**Time:** Circa 1500 to 1600.

**Sources of Inspiration:** Derived principally from surrounding countries. The urge for the revival of the arts expressed over Europe found a late but active response among the natural craftsman of the Netherlands. Their furniture was influenced by their own conservatism and by their natural attraction to home life.

**Government and Conditions of the Times:** These



① and ② Straight lined and wheel, Flemish chairs from the Renaissance period in the Netherlands.

Note in the square chair the beginning of lines somewhat familiar to our times.

Stretchers connect all legs, giving the appearance of strength, Dated by Hunter seventeenth century.



③ Flemish cabinet from the late Renaissance, also classified as Baroque.

Note the architectural structure and the relation of the ornament to the form.



④ Detail of Flemish carving in oak. The people of the Netherlands and of Germany were noted for their carving which was usually of deep and expressive execution.

This ability inheres today among the people of Holland and Germany.



countries answered to the same type of rulers that governed the rest of Europe. They were alternately subjects of Austria, Spain and France and their furniture arts contained much of the best that these countries had to offer. While subject to the political strifes of the Middle Ages, the inhabitants of Holland and Flanders were active and thrifty both in agrarian and industrial pursuits. They became in reality the first merchandisers of furniture in Europe, and their craftsmen were employed in practically all of the countries of Western Europe and in England. When Holland became independent of Spain in the latter part of the Sixteenth century, the style of her furniture changed, taking on an individuality which was later borrowed to some extent by England during the Elizabethan and Jacobean periods.

**Architecture:** Square and heavy with the appearance of solidity.

**Lines:** Straight.

**General Appearance:** Cupboards, beds, tables and chairs were ornamented with severe pilasters and columns in the style of the Italian Renaissance, adapted to Dutch taste, by rich scrollwork, mountings and pyramid ornament. The arm chair, which was in favor in these countries, had legs turned in balusters and cubes and connected by stretchers.

**Structural Details:** Cupboards and credences were made with four doors, divided by enriched pilasters, having bases mounted on bun feet. Chairs usually had straight and low backs. Stretchers connected the four solidly made legs and gave the chair the appearance of strength and solidity. Heavy cornices at the top of cupboards were particularly characteristic.

**Decorative Details:** Carving was the chief decoration. Flanders is known for its skilled carvers and furniture craftsmen. They embellished furniture with foliated ornament and grotesque scroll-work. Seats of chairs were often upholstered with leather, attached to the wood part by heavy brass nails. Inlaying was effected with black ebony, yacca and other decorative materials.

**Woods:** Oak.

**Specialties:** Cupboards, chests, beds, chairs, arm-chairs, long tables.

**Modern Adaptations:** Some furniture originating in this period will fit into the modern home. Small tables, chests, and consoles are often copied with excellent re-



sults. The chairs may be used in formal halls or reception rooms, the furniture of this period being too heavy for modern home adaptation.

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## CHAPTER XII

### TUDOR-ELIZABETHAN

**Place:** England.

**Time:** 1509-1603.

(House of Tudor).

Henry VIII—1509-1547.

Edward VI—1547-1553.

Mary—1553-1558.

Elizabeth—1558-1603.

**Sources of Inspiration:** The two principal influences of Tudor-Elizabethan furniture (corresponding to the Renaissance period in Europe) were: first, the abolition, during the reign of Henry VIII of ecclesiastical presence in furniture design and decoration; second, the thoughtful taste of one of the most intelligent, enterprising and constructive women rulers that history has ever known. Henry VIII imported a large number of Italian workmen who, imbued with the freedom of the Renaissance arts, enriched and softened the heavy and barren furniture which had prevailed in England previous to this time. What Henry VIII started, Elizabeth encouraged. This may be said to be the "Golden Era" of England in respect to arts and letters. It was the period of Shakespeare, Edmund Spenser, Francis Bacon and Ben Jonson; an age of philosophy, literature, and artistic growth. It was an age during which the printing-press was developed and a period of intense commercial activity begun. It was a period of discovery and extension—in fact, it was the beginning of the English Empire as we know it today.

That these persons and events influenced furniture cannot be gainsaid. It was a period that may be compared with that of Pericles in Greece, Augustus in Rome; with

that of the great painters of the early Renaissance and of Louis XIV in France.

**Government and Conditions of the Times:** Politically and economically this period may be called one of reform. Great changes took place both in the material and spiritual life of the people of England. It was the end of serfdom and much of the power of the nobility and landed freeholders was curtailed. It was also the beginning of an industrial era that has continued to the present day. The English people began to exercise the liberties they obtained through Magna Charta and to benefit from the justice and liberty for which they have since become world renowned.

The growing strength of the parliament reflected the development of the individual in public and private affairs. This freedom from the old fetters quickly asserted itself not only in the quality of furniture but in the quantity and in the more general use of furniture in the common home.

**Architecture:** Retaining the large, straight and severe proportions of the Gothic with an elaborate use of carving copied from the Italian Renaissance.

**Lines:** Straight and rectangular. Large and bulbous.

**General Appearance:** Flemings, who took refuge in England during the Spanish oppression, did much to influence the style and decoration of Elizabethan furniture. "The English school is ruder and more material," says Bonaffe. "The figure drawing is very inferior; and there is a liking for grotesque attitudes, odd composition and excessive ornamentation. There is, however, a style about the whole; it has a certain air of sumptuous grandeur which we cannot despise. Its favorite wood is oak; sometimes it employs pear, ebony, and marquetry. The old inventories also mention works in cypress-wood." The carving of English Renaissance furniture is so excessive that it gives little opportunity to show off, with plain surfaces as contrasts, the effect it produces.

Elizabethan furniture can really be styled as a Renaissance veneer over a Gothic framework. The English freeholders were rich and had learned to "garnish their cupboards with plate and their joined beds with tapestry and silk hangings." Chair backs were paneled and the panels were elaborately carved.

**Structural Details:** Tudor-Elizabethan furniture is noted for its sturdy construction. If nails or screws had been used instead of wooden pegs, the furniture of this period

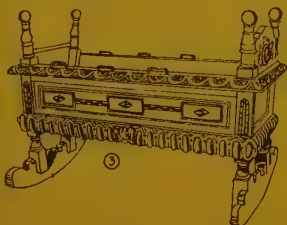


① Bedposts of the Early Renaissance period in England, about 1520, and during the reign of Henry VIII. These posts have bases diapered with Gothic foliage.



② Box chair, 1525-50. Note charm with which linenfold is adapted to the spaces it fills.

Carved friezes from Elizabethan period.

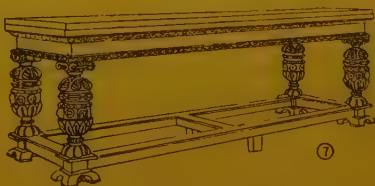


③ Carved oak cradle of the sixteenth century, showing carving, turning and inlay of the times.



④ carved dragon headed scroll.  
⑤ chain strap work in low relief.  
⑥ depressed lunettes with repeated ornament.

⑦ Oak draw table about 1600. Note huge bulbous turned legs with Ionic caps and acanthus leaf decoration.



would have perished from rust or corrosion. Foley says, "When examining woodwork of the Sixteenth century one is impressed with its sound and substantial condition after daily usage, often of a rough character, for some hundreds of years. After making every allowance for the action of the 'survival of the fittest,' it seems certain that the simple methods of construction employed by our ancestors might be reverted to with advantage; that glue, French nails, and 'halving in' are but poor substitutes, if durability be required for the well made mortise and tenon, and the dowel."

The huge bulbous ornaments and massive turnings are the most characteristic structure points of the Elizabethan period. Underbracings were used on chairs, tables and stools. The terminals of chair, table, stool, and bed legs were either straight, square or bun-shaped. The Gothic arm coming straight from the back of the chair was characteristic of the furniture during the early part of the period but during the latter part, in Elizabeth's time, the arms began to slope downward. The tables of the time were long and narrow with huge bulbous legs and heavy stretchers sometimes almost flat on the floor, at other times about two or three inches above the floor. Beds were enormous, for example, the Great Bed of Ware which is reputed to have comfortably accommodated twenty-four people. The posts of these beds were frequently built independent of the bed itself and decorated with the profuse carvings of the day.

**Decorative Details:** Inigo Jones, the greatest architect of the times, did much to bring into England the Renaissance art. He made several trips to Italy, "a journey requiring much courage and resolution before steam motors. And having gone there he stayed, poring over the Roman ruins, drinking in every line, every detail, becoming saturated with art which we call classic."\* The Italian workmen, who tried to teach the English cabinetmaker the freedom and beauty of Italian Renaissance design, accomplished but little in bringing the artistic perfection of Italy into the Island. England made her own interpretations, sometimes crude, unnatural and grotesque, nevertheless retaining a certain charm.

Caryatides, human busts and bodies, oftentimes representing some heathen goddess or god, supplanted the angels and saints of the pre-Renaissance days. Inlay with

\* "Decorative Styles and Periods in the Home," by Helen Churchill Candee.

holly, ebony, yew, pear and other woods may be found on oak chests and tables. The Tudor arch, the Tudor rose, carved lozenges, fruit and floral patterns were the principal motifs for carving. The linen-fold, together with other ecclesiastical motifs, lost its popularity with Henry VIII, although used during Elizabeth's time. Beds had heavy wooden canopies (testers) and paneled head boards which were profusely carved. Some had little drawers under the bed whose bases were built solidly to the floor.

**Woods:** Walnut, ebony, rosewood, pear, cherry, apple, box, ash and yew. Pearwood was often stained black to imitate ebony.

**Specialties:** Long rectangular tables, cupboards, chests, stools, court-cupboards, four poster beds, and wainscot chairs.

**Modern Adaptations:** Elizabethan decorative design is a popular type of modern embellishment. This is particularly true of the mellon-bulbous leg, channeling and the Tudor rose. The furniture itself is too heavy and awkward to meet modern requirements.

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### CHAPTER XIII

#### GERMAN AND NORTHERN EUROPEAN RENAISSANCE

**Place:** Germany and the Scandinavian countries.

**Time:** Early, 1550-1600; Middle, 1600-1650; Late, 1650-1725.

**Sources of Inspiration:** Generally derived from Renaissance thought as developed in Southern Europe. Noticeably affected by native arts and Gothic traditions. In the Scandinavian countries the furniture bore distinct

marks of maritime influence, such as ships, sails, dragon heads, all ingenuously interwoven through Renaissance expression. There was an early adoption of carving in which the peoples of these countries later excelled. In practically all of the Renaissance furniture of Northern Europe there is carried over from the Gothic period a marked ecclesiastical stateliness.

**Government and Conditions of the Times:** Practically the same as that which prevailed throughout all of Europe, namely, provincial dukes, petty kings and hereditary kingdoms. The people, until relatively late in the Middle Ages, lived a semi-tribal life and rigidly guarded their liberties. Their thrift and endurance is clearly reflected in all their arts to which the making of furniture became a great contribution.

**Architecture:** Large and ornate.

**Lines:** Low and rectangular.

**General Appearance:** German Renaissance furniture was highly decorative with carving done in low relief. The Late Gothic style in architecture still remained in many parts of Germany, particularly in the north. However, the Renaissance spirit influenced the decorations.

**Structural Details:** Cupboards were often made in one, two or three parts. The pilasters and columns used for decoration were heavy, the cornices projected and banding came into common use. Small niches crowned with a pediment developed on door panels and between twin columns. Wainscoting, which became popular first in Germany, brought out the corner cupboard. Chests, cupboards and credences were distinctive because of their many doors.

**Decorative Details:** Flat pilasters and friezes with fine acanthus patterns and vase ornaments, formed an important part of German Renaissance decoration. Triglyphs, the skulls of animals, and ecclesiastical figures were used to a great extent. Veneering was extensively used by German craftsmen. In northern Germany, metal ornament and scroll work was in evidence and inlay was also in use. The "broken corners" are among the distinctive features of German Renaissance furniture.

**Woods:** Oak and fir; inlays and carving in lime and oak; veneers in ash, boxwood and fine and precious woods were used.

**Specialties:** Chests, credences, cupboards, corner cup-



① A sixteenth century German chest of Bavarian workmanship. Though late in adopting carving as a furniture enrichment, the Germans have since excelled in this art. This chest is incised with what is known as a V tool, forming a sort of bas relief decoration.



② Early seventeenth century Swedish table, showing the trend of the Renaissance toward the north.



③ Section of panel from a German oak buffet of the seventeenth century, showing use of foliage, shield and accessories of knighthood.



④ Early and conventional modelling of foliage from a fourteenth century German chest.

boards, jewel caskets, state tables, state beds, and chairs inlaid with ivory and silver.

**Modern Adaptations:** German Renaissance furniture is seldom adaptable to the modern home, but it forms effective fittings for club rooms, hotel lobbies, libraries, large drawing rooms and public meeting places.

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### CHAPTER XIV

#### VENETIAN AND FLORENTINE

**Place:** Cities of Venice and Florence.

**Time:** Circa 1600 to 1700.

**Sources of Inspiration:** An artistic reawakening which was at that time sweeping Italy. Painting found much of its inspiration in Florence and Venice and was liberally applied to furniture decoration.

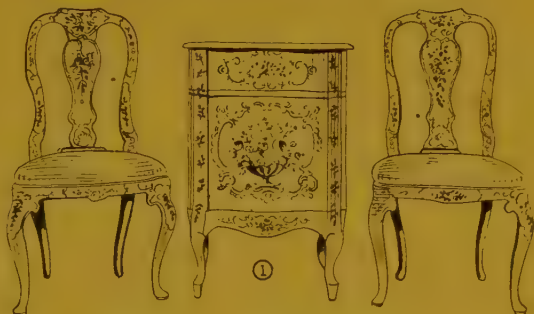
**Government and Conditions of the Times:** Florence and Venice were independent principalities constantly defending themselves against oppressive neighbors. Both being wealthy industrial towns, they were the envy of the whole then civilized world. Almost all of Europe united in the "League of Cambray" against the republic of Venice whose forces were defeated. But Julius II, who headed the League, turned against it and in 1511 drove the foreigners out. Venice retained her independence until 1797.

**Architecture:** Rectangular and low, well proportioned and delicately embellished with carving and painting.

**Lines:** Rectangular.

**General Appearance:** Florentine furniture, especially chests, had high receding plinths, steep contours and flat carved grooves and profiles of vertical reeding; slanting tops all in perfect harmony with graceful proportions. Venetian furniture was decorative to a high degree, the tables and chairs were often covered with fine velvets or leathers.





① Group of Venetian commode and chairs of the 18<sup>th</sup> century. These pieces were originally painted red with various colored floral decorations.



② Florentine chair of the 15<sup>th</sup> century. The X-shaped chair design is attributed to the Romans.



③ Table of carved wood. Venetian work of the 16<sup>th</sup> century. The figures are perfectly chiseled which was a characteristic of Venetian craftsmanship.



④ Florentine cassapanca of the 16<sup>th</sup> century.

**Structural Details:** Florentine furniture had the appearance of being built up from a low base. In its evolution came first the chest, later the cupboard, writing desk, and the credence, which was a low ornamented cupboard, with two doors. Usually drawers were fitted under the top. Venetian furniture varied in size, everything being made from the small jewel chest and organ case to large tables and chairs.

**Decorative Details:** Florentine furniture, having a wealth of fine ornamentation, was closely allied with sculpture. In fact, often the figures of angels, seraphims and cherubs form part of the embellishment on chairs, settees and chests. Convoluting tracery which abounded on the chests and coffer predominated in Venetian furniture ornament. Stucco ornament was combined with painted panels. Bone and ivory, light and dark wood intarsia also flourished. Painting and gilt work, especially painted figures, surrounded by arabesque ornament were among the favorite types of embellishment.

**Woods:** Walnut.

**Specialties:** Chests, box settles, jewel chests, organ cases, rectangular tables, octagonal tables, writing cabinets, stools, credences, cradles, pedestals, reading desks, bellows, and picture frames.

**Modern Adaptations:** Tea tables, chests, card tables, console tables, from the Florentine; and much bedroom and specialty furniture from the colored Venetian style.

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## CHAPTER XV

### EARLY JACOBEAN

(Sometimes called "Stuart")

**Place:** England.

**Time:** 1603-1649.

(House of Stuart).

James I—1603-1625.

Charles I—1625-1649.

**Sources of Inspiration:** This period, known as that of the Stuarts, is comparable with the period in France during the later reigns of Louis XV and XVI in that the ruling powers were, perhaps, greater lovers of the arts, of poetry and of beautiful surroundings than of state-craft and politics. They yielded also to a better understanding of the former than of the stormy contentions of a rebellious parliament with results which were not unlike those preceding the French Revolution. Furniture styles fluctuated with the preferment of the king and queen. It was a period of exquisite woodwork, rich in design and decoration. The furniture betrayed a "crude but vigorous adaptation of the ornament of the Italian Renaissance," (Foley). The principal interpreter of Elizabethan and Jacobean furniture was Inigo Jones, architect, who lived an active and richly productive life during the reigns of four English rulers, beginning with Elizabeth. He saw James I ascend the throne followed by the ill-fated Charles I and also lived to see Cromwell establish the Commonwealth. Inigo Jones died in 1652. The latter part of this period was largely influenced by Sir Christopher Wren, architect, who laid aside the Elizabethan tastes and sponsored a more purely classic revival which was rudely interrupted by the Civil War and a period known as the Cromwellian, or Commonwealth.

**Government and Conditions of the Times:** With all the improvement and advancement in both the political and economic life of England under Elizabeth, James I, when he arrived from Scotland to occupy the English throne, found a general desire for change. There was a demand for a relaxation in ecclesiastical laws and religious discipline became less harsh. It was largely a period of religious strife, however, and the temperament of the people was more or less aggravated by constant struggle between the parliament and the throne. James I was indolent in his temper and inclined to leave patronage and business in the hands of confidential favorites. There was a general attack on monopolies and an increasing cry for justice in secular affairs. James I died from infirmities and sickness in 1625.

Charles I was the son of James I and Anne of Denmark. He continued the struggles of his predecessors with the parliament and endeavored to run the country for a time without it. He was a man of schemes and chicanery who went even to the point of treason to attain his ends, by making an engagement with the Scots to invade England.

This led to his undoing. His trial, conviction and execution may be said to have been the final struggle of the people of England for freedom and liberty and for the right to constitutionally govern themselves.

**Architecture:** Low, straight and sturdy. Somewhat similar to Elizabethan with less ornamentation. Simple in structure.

**Lines:** Straight, rectangular and low.

**General Appearance:** Ceilings in the homes of the English during the days of the early Stuarts were built low, thus causing furniture to follow the same proportions. Many of the Elizabethan and Gothic characteristics remained, although the carved embellishments were more modified. The legs of chairs and tables were straight and turned in a variety of designs and when the "mellon bulb" was used it was considerably smaller in size. Ornamentation being mostly carving, was heavy and monotonous. Underbracings always tied together the legs of the chairs and tables and served as foot-rests.

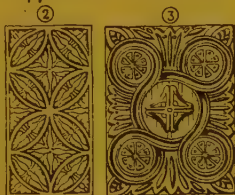
**Structural Details:** The cabinetmakers of England were not yet craftsmen, but carpenters. The same men who builded the houses of the time made the furniture which went into these homes. Joiners were novices and clung closely to the simple manner of constructing furniture, and "subtleties were left to decoration and not outline."

The legs of chairs and tables were straight "and took their weight squarely," says Helen Churchill Candee. "The backs of chairs, too, rose straight from the flat seat in an uncompromising directness, which must have tortured all spines but the strongest."

Chests were box-like and rested on the floor, often being without any feet whatsoever. Tables were but boards set on legs and cupboards were like large boxes. "It was a time when the worker evidently started with an oaken plank and was loath to destroy its original aspect."

**Decorative Details:** What the furniture of the Early Jacobean period lacked in structural refinement, it acquired in decorative expression. The Jacobean carver began on a flat surface and endeavored to retain its smoothness. Consequently carving was done in low relief. Designs and motifs were restrained and conservative—perhaps a little severe—but seemed to please the people for whom they were made. Carved circles formed a running pattern, sometimes detached, sometimes tied together with a straight bar or forming a graceful serpentine scroll. The latter

① Cabinet from the Early Jacobean period, joined with wooden pegs. Each panel has quilloche carved ornament. Note the decorative charm of the supports and pilasters.



Types of Jacobean design

② still retains some of Gothic influence ③ shows high standard of symmetry.



④ Beginning of the gateleg table. Candee estimates date around 1610.



⑤ Typical arm chair with scrolled cresting. About 1635. Note Gothic remnant in carving.

⑥, ⑦ and ⑧ are types of design in friezes of the period.

suggests the Roman guilloche revived by the Renaissance spirit in England. Another motif which is often found on Early Jacobean furniture is the semi-circle, filled with foliage or long petals. The smaller designs were continuously repeated slanting gouges, indicating roughly a spiral. This type of ornament was frequently used on mouldings. There was also a weak attempt to use the acanthus leaf.

**Woods:** Principally oak.

**Specialties:** Chests, cupboards, chairs, tables, gate-leg tables, wainscot chairs, beds and couches.

**Modern Adaptations:** Because of its simple style, Early Jacobean design finds a ready adaptation in modern furniture. It was particularly used during the early days of the settling of America and consequently in our reproductions of Early American furniture we are consciously or unconsciously borrowing from the English furniture of this period.

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## CHAPTER XVI

### LOUIS XIII PERIOD

**Place:** France.

**Time:** 1610-1643.

**Sources of Inspiration:** While devoid of any noticeable inspiration in the development of the furniture arts, it was during the reign of Louis XIII that the way was cleared for a social and final triumph of the great French kings and the subsequent fall of the monarchy. Unlike

his successors, Louis XIV, XV and XVI, Louis XIII and his court did not contribute anything to the visible cultural development of French domestic surroundings. Louis' mother, Marie de Medici, of Italian lineage, upon the assassination of Henry IV, seized the regency and endeavored to make her rule permanent until the entrance of one of France's most outstanding characters, Cardinal Richelieu, into the king's council, in 1624. Marie was an ardent sympathizer of Spain and would have alined France with Spain and Austria had not Richelieu frustrated her plans. Louis XIII was married to Anne of Austria, daughter of Philip III, king of Spain. Hence the furniture of the court, while in part Italian, partook of much of the largeness of Spanish furniture and some of its decorative tendencies. But at no time did it approach the colorful beauty of the furniture of Spain or the distinction for which Spanish furniture is noted. Louis XIII was backward, a lover of the outdoors and influenced by favorites who made no study of the furniture arts. While the arts may be said to have slumbered, however, the early Seventeenth century signalized a growth of poetry, drama, literature and romance which has never before or since found its equal in France. It was the age of Jean Louis Guez de Balzac, of Retrou, Corneille, Moliere, Descartes, Pascal, Bossuet, Fenelon and a host of thinkers and expressionists whose influence more than any other precipitated and prepared France for the darkest hours that ever have come to a civilized nation and from which the country emerged, free and victorious with the passing of Napoleon.

**Government and Conditions of the Times:** Absolute monarchy. France, under Richelieu, was continually at war. The court of Louis XIII was ever subject to intrigues. The nobility was in debt and the bourgeois began to monopolize the magistracy. The country people, through the policies of Henry IV, had been somewhat relieved from excessive burdens of taxation and began to show a measure of prosperity. The use of good furniture began to be more general, and the rich bourgeois had both the means to acquire it and an appreciation of its beauty and comforts. There was much copying of court styles, a fact which led Louis XIV, upon his accession to the throne, to hasten a change in prevailing modes in furniture.

**Architecture:** Large and awkward with more attention paid to grandeur than to beauty or comfort.

**Lines:** Square with the use of some curves.



**General Appearance:** The furniture pieces of this period may be said to be divided into two parts, the upper parts usually being the shorter. This division was made by means of a cornice, a shelf or a distinct decorative line. Cabinets, armoires, etc. were monumental and architectural and were surmounted by a broken pediment. In many instances the mouldings formed a frame for panels in which the square form predominated.

**Structural Details:** Chairs were square, as were the bedsteads. The twisted column, spiral leg and the baluster were in favor. Console tables and gueridons were in general use and heavy mirror frames became an important feature of decoration.

**Decorative Details:** The hexagon replaced the octagon type of decoration. The oval or oblong, on which was usually engraved or carved the name of the king or queen, was a favorite type of decoration. Italian taste brought to France in this period a vogue of incrustations of mosaics, hard stones, painted plates, mother-of-pearl, ivory and amber. Brass inlay and tortoise shell work on a background of wood were also used.

**Woods:** Principally ebony, also oak and walnut.

**Specialties:** Cabinets, folding stools, canopied beds, chairs with rush and upholstered seats, tables and armoires.

**Modern Adaptations:** It is doubtful if Louis XIII furniture would fit modern living conditions. Contributing little that was inspiring and beautiful to the furniture arts, it has been practically discarded by modern designers of furniture. Some of the decorative themes and motifs are sometimes used in the embellishment of the furniture of the present time.

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① Carved walnut cabinet with inlaid pilasters from the period of Henry IV and belonging generally to the furniture of the time of Louis XIII.

Cabinet furniture at this time was usually divided into two parts the upper being the shortest. Monumental architecture, broken pediments, heavy mouldings and profuse carving characterized the decoration of Louis XIII furniture.

② Detail of end of an oak table from the period of Louis XIII.

③ Detail of pilaster and frieze of a chimney piece of the same period.

④ Type of carving which adorned furniture at this time.



## CHAPTER XVII

## FURNITURE OF THE NEW ENGLAND STATES

**Place:** New England Colonies (later States).

**Time:** 1620 to 1790.

**Sources of Inspiration:** In any consideration of early New England furniture, it must be remembered that the colonies were strongly British. Therefore, it is not strange, that the little decoration we find on the crude pieces made in this country before the Revolution, as well as after, is in imitation of the prevailing styles of the Mother Country. New England furniture, as a rule, was made for utility and had little ornamental value. Only the very necessary pieces needed in the home were hewed from the lumber of the vast forests in which the settlements were situated. In the introduction of "The Geography of American Antiques", by Lurelle Van Arsdale Guild (Doubleday Page & Co., 1927) we find the following explanation: "After the first homes had been erected, attention was turned to the few pieces of furniture necessary to make them livable. And few they were those first two winters, for time was filled wresting a living from the land and forest and protecting the little settlement from the Indians. The original band from the Mayflower was daily being diminished by sickness and misfortune, and the vital problem of keeping as many as possible alive kept the more rugged busy and occupied time that might have, under more normal circumstances, been spent perfecting and embellishing the home.

"We can scarcely suppose that the Pilgrim Fathers, buffeted by persecutions, sickness and death, carried to this new land by their staunch and rugged spirits, indomitable courage, and sense of justice could have, when necessity demanded, produced aught else than the sturdy, stout furniture which we know today as their handicraft. Somber and even crude, it personifies the coarse manners and dogmatic firmness of the men who made it, and aside from the personal sentiment which we may feel in regard to it we must recognize the value, from a purely historical point of view, gained from the study of it."

No doubt some of the wealthier people in the more prosperous cities could afford furniture imported from England. Many pieces were thus brought into the Colonies but could scarcely be called American. It was only when craftsmen from England settled in this country and adapting the cabinetmaking principles learned from their over-

seas fellow-designers, together with the making of furniture to fit American needs, that Early American furniture came into being. There is a distinct atmosphere about our own furniture which makes it characteristically American.

**Government and Conditions of the Times:** To the average American citizen the history of our early ancestors, their political and economic struggle is more or less familiar. To refresh the mind of the student with some of the situations under which these men and women struggled we are quoting a few paragraphs from the "Historical Writings" of John Fiske.

"In the Dutch colony on the Hudson a most liberal policy was pursued with regard to the administration of immigrants. New Netherland (New York) never suffered from this source of weakness which afflicted New France. Nobody was excluded for heresy. But as regards the transfer of self government to America, the Dutch were not wholly successful. \* \* \* At first, the government was simply that of the agent of a commercial company. Laws for the settlers were chiefly made in the Amsterdam Chamber of the West India company. They were administered by Peter Minuit, the Director General, assisted by a council of five members appointed in Amsterdam. It was a court for the trial of civil and criminal cases, and could inflict fine and imprisonment, but not the death penalty. \* \* \* This was a very simple government, suited for an infant community, but the people took no part in it. It was not government of the people, by the people and for the people; but it was government of the people, by the Directory and Council for the West India company. \* \* \* At the same time the 300 inhabitants of Plymouth made laws for themselves in a primary assembly and elected their governor. \* \* \* The years 1628-30 marked the beginning of a new era in the colonization of North America. More than 100 Englishmen came to Massachusetts Bay, and more kept coming until in a dozen years the population of New England was 26,000."

Inasmuch as this period takes us through the American Revolution, it may be in order to mention a few facts regarding the country after the great struggle for freedom. The young country did not recover from the ravages of the war as quickly as it had hoped. Woodrow Wilson in "A History of the American People", Vol. III says: "It was a rural nation which had drawn together into this novel union--a nation without aristocratic example now that its connection with England was cut off; with

nothing but its own simple needs, naive preferences, and manifest convenience to consider, now that it was no longer part of an extended and various empire. It had been obliged, because convinced by the unanswerable arguments of tumult and of ugly reprisals of State upon State, to set up at its centre a real government again, to take the place of the government over sea from which it had broken away; a government with an authority of its own which was likely to be even more efficacious in holding them together in a co-operative union than the authority of the king and parliament. The people could not, it is true, of a sudden shake off their life-long habit of following those who had always seemed their natural leaders. Their society was old; their commonwealths were compact of law that was rooted deep in the past; their thoughts were stuff of old tradition. Noble gentlemen who were of the gifts and breeding which had so long made the chief families among them seem a sort of privileged and authoritative class, to be looked to as a source of guidance, had endeared themselves to them anew by their cordial espousal of the popular cause and by their indispensable capacity in its successful promotion; had still an unmistakable prestige in affairs. But their governments had long been in fact democratic, and were now democratic in form also, and the privilege of leading could not much longer be monopolized among them."

**Architecture:** Solid, rectangular and low.

**Lines:** Straight, with almost no use of curves.

**General Appearance:** As in the European countries, the beginning of American house furnishings centered about the chest. It was easy to make, convenient to store valuables, could be quickly moved and served a multitude of purposes. These chests were made of pine, for two reasons. One, that the pine forests offered abundant material, and two, because pine was soft and easy to work. The joints which connected the rails and stiles were mortised and tenoned by square dowel pegs, driven completely through round holes. The pegs were placed close to the mortised members and because the shoulder of the tenon was flush and tight, the wood did not split when the pegs were inserted. Paneled lids very seldom appear on American chests, but initials of the owners were often crudely carved on the sides. Perhaps this was done during the long winter evenings by the master of the house or even by his sons, who wished to exploit their skill in furniture embellishment. Ecclesiastical carving came in very early

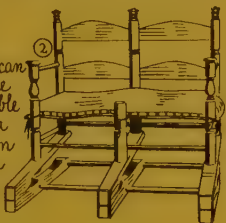


① Carver chair, taken from the original supposedly brought to America by Governor Carver. The early ones have heavy turned posts and simple turnings, later the posts have smaller turnings, in vase or other forms. Three rails and three spindles in the back are characteristic.



③ Brewster chair, dated by Lockwood, at first quarter 17<sup>th</sup> century. The back has a double tier of spindles, of lighter turning than the Carver, the chair illustrated is incomplete.

② An Early American wagon seat. These seats served a double purpose: one as a comfortable seat on a wagon, the other as a settee in the parlor.

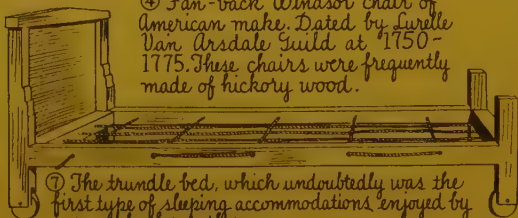


⑤ Several examples of characteristic Stretcher table turnings.



⑥ Finials and feet of chairs between 1630 and 1800.

④ Fan-back Windsor chair of American make. Dated by Lurelle Van Arsdale Guild at 1750-1775. These chairs were frequently made of hickory wood.



⑦ The trundle bed, which undoubtedly was the first type of sleeping accommodations enjoyed by our early forefathers.

on the chests due, no doubt, to the strong religious feeling which existed among the New England colonists.

In the earliest inventories of household furnishings we find some reference given to "joyned stools" and "joyned chairs." The "wainscott" chair was comparatively popular in the South, but seldom found in the New England states. Settles, capable of accommodating three or four persons were the most popular type of seats. These were hewed from pine boards and of course carried no decoration. The feet were often a continuation of the sides. "Trestle tables" or "table boards and joyned frames" were also listed in the furniture made. In the Boston News Letter dated 1715 an advertisement reads "Looking glasses, cabinetts, escrutoires, chests of drawers, tables, beaufetts bookcases, with desks—and all sorts of Japan work, done by William Randle at the sign of the cabinett and looking-glass shop near the Town House, Boston."

**Structural Details:** The chest evolved from the box on the floor by the addition of legs, then a lower drawer, then raised to a level which made it more easily accessible. From this it was but one step to the "high boy" a series of shelves above the chest, enclosed behind doors. "The legs of the frames were usually turned, with flat or turned stretchers running into a block at the base of the leg. The leg met squarely with the underframing of the chest and extended in a rectangular block to the lid to form the side construction." (The Geography of American Antiques.)

The six-legged highboys which were among the first to make their appearance, were chests supported on six legs, four of which were in front. The stretcher, which was often cut in graceful cyma curves, joined the legs on the four sides, which terminated in ball feet.

Low backs placed on the chests was perhaps the beginning of the settle. From this source came the wainscot chair, resembling in detail the Jacobean chair of England. The legs were turned in much the same manner and sometimes had carving on the stretchers. The very rich had velvet cushions, the first attempt at comfort. Slat back chairs, "wagon seats", Brewster and Carver chairs followed in close succession and gained considerable favor among the settlers. The back posts were frequently of one piece—reaching from the floor to the top of the back—sometimes turned and capped with heavy finials. Stretchers are continually in evidence on all chairs made in New England. Windsor chairs, in imitation of these made in

England, found enthusiastic reception among the carpenters, journeymen and wheelwrights in young America. They were copied and improved upon, made in various shapes and styles and constitute one of the outstanding Early American types of seats.

Trestle tables, hutch tables, gate-leg tables, for the most part constructed of pine, served the people for dining and other table purposes. The legs were turned, sometimes trumpet-shaped with a variety of feet. Heavy wooden stretchers are found on almost all tables made during this period.

Trundle beds, folding press beds and eight-leg beds are among the relics we have of Early American furniture.

**Decorative Details:** In "Colonial Furniture in America", L. V. Lockwood says "The commonest designs (for carving) were the shell, mascaron, cartouche, swags of flowers, acanthus leaves and other classical designs. Claw feet of birds and animals grasping balls were popular, and, although these designs were sometimes found in metal work of a much earlier period, they first became popular at this time. (Editor's Note: around 1700). The style came to England from Holland and to this country from both, and is known as the Dutch, Queen Anne, or Early Georgian style."

The scroll entwined to form a single or double panel was frequently used on chest fronts and sides. The decorative effects on chests and highboys were almost entirely obtained by panels and turnings.

Inlaying, floral designs, painting, etc., is frequently found on pieces dating between 1600 and 1700, showing that the cabinetmakers in America were keeping in close touch with their English contemporaries and duplicating the prevailing fashions of England in the furniture of this country.

**Woods:** Pine and oak for construction. Burl walnut, bird's-eye maple, tulipwood and others were later used for veneers.

**Specialties:** Chests, settles, trestle tables, gate-leg tables, wainscot chairs, stools, butterfly tables, trundle beds, folding beds and other common pieces.

**Modern Adaptations:** During the past few years, there has been a revival of interest in Early American furniture design. Duplicated in modern craftsmanship and finish, made of pine and oak, these pieces are particularly adaptable for breakfast rooms, bedrooms, halls, and occasionally dining rooms. The pieces left for our inspection, however,



are so few, that many manufacturers have "reconstructed" a suite around a single piece, much as the paleontologist reconstructs, from a single limb or organic member, the complete anatomy of an extinct animal.

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## CHAPTER XVIII

### LOUIS XIV PERIOD

(Baroque)\*

**Place:** France.

**Time:** 1643-1715.

**Sources of Inspiration:** A grand monarch, a brilliant court, a studied culture, all augmented by a revival of art and letters, poetry, philosophy and plays, combined to influence this, one of the outstanding furniture periods in the history of continental Europe. Louis XIV was a patron of all the cultural arts and while the aforesaid development in art and literature had reached, if not passed, its zenith when he ascended the throne, the period will nevertheless be known to his credit as being its inspiration and guide. Court favorites, particularly royal mistresses, began at this time to influence arts and customs and in Mademoiselle de la Valliere furniture and interior decoration found an ardent and active patron. She held her position as the king's mistress until 1670, when she was succeeded by Madame de Montespan, whose intrigues became a part of French history and who finally ceded her position to Madame de Maintenon, who, upon the death of the queen, Maria Theresa, became the king's wife. These women, probably more than the king himself,

\* A grotesque, fantastic style of ornamentation, common during first half of Eighteenth century.





① and ② are mirrors from the period of Louis XIV. They are selected with the view of giving the student a general idea of the type of ornament that was applied to all furniture at this time.



③ This Louis XIV table, executed by Daniel Marot, will give the student an estimate of classical influence that obtained in the furniture of this period.



④ and ⑤ are details of Louis XIV table legs in curved and semi-geometrical design.  
⑥ Detail of the arm of a settee, Louis XIV.

influenced the furniture of the time. It was a period of patronage and sponsorship, and liberal largesses were granted to geniuses in furniture designing and workmanship.

**Government and Conditions of the Times:** Absolute monarchy. It was a period during which France was the predominant country in Europe, but her eminence had been based largely upon the economic oppression of the people. The beginning of the reign of Louis XIV was one of promise and glory, the end, an ignominious decline. "Disease and famine; crushing imposts and extortions; official debasement of currency; bankruptcy; state prisons; religious and political inquisition; suppression of all institutions for the safe-guarding of rights; royal, feudal, and clerical oppression burdening every faculty and every necessity of life; 'monstrous and incurable luxury';—all concurred to make the end of the reign a sad contrast with the splendor of its beginning." (Encyc. Brit.) While closing a great era in French history, the reign of Louis XIV was but a prelude to an even greater orgy of extravagance in living and in social debauchery, which was to reach its zenith during the period of his successor and its final termination in a great and bloody revolution.

**Architecture:** Severe and classical; distinct, formal and dignified; massive and magnificent.

**Lines:** Generally straight with limited use of curves.

**General Appearance:** The furniture of this period was large and imposing with lavish though studied ornamentation. Paneling was frequent, and mouldings were large. The colors used in tapestry and paintings on furniture were dark and deep. Green, crimson and gold were the predominating shades.

**Structural Details:** Almost all chairs had underbracings; cross-shaped chairs and stools were in vogue during the period. The legs of both tables and chairs were rather heavy in appearance, some being straight, others cabriole. The legs of the chairs were always exactly alike in form and ornament. The backs of chairs were high and straight. Paneling formed a principal part of the structural detail, surrounded by wide mouldings.

**Decorative Details:** Painting, carving, gilding, lacquering, and inlay formed the principal types of decoration. The chairs were upholstered in rich and beautifully woven tapestries, velvets and damasks. The bun or onion foot, borrowed from the Flemish, was often in evidence, but the

cloven hoof style and acanthus leaf were more frequently used. Tops of tables and commodes were often made of marble. Hermae, amorini, fauns and nymphs, interlaced with ribbons and acanthus leaves, formed the basic decorative theme.

**Woods:** Oak, walnut, ebony and chestnut. Various rare woods were used for veneers, inlays and onlays.

**Specialties:** Cupboards, chests, cabinets, buffets, medal and coin cabinets, low ebony cupboards, carved and gilt stands, console tables, writing desks, bureaus.

**Modern Adaptations:** Louis XIV furniture is not adaptable to small rooms of modest decoration; it finds a real setting in rooms with elegant and rich backgrounds, among sumptuous wall and window decorations. Only the small pieces of this period will find a place in the average modern home.

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## CHAPTER XIX

### CROMWELLIAN OR PURITAN

**Place:** England.

**Time:** 1649-1660.

**Sources of Inspiration:** Like the pendulum of a clock which has been moved or disturbed, furniture inspirations

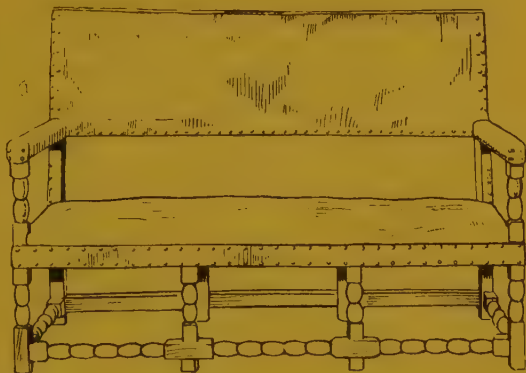
and styles often swing from one extreme to another. The Cromwellian period, sometimes called "Puritan", covering what is known as the Commonwealth of England, is a departure from the very impressive, ornate and established grandiloquence of furniture to the severe, austere and simple. This was brought on largely by religious demands of frugality and the social democracy which always follows when governments swing from the rule of princes and kings into the hands of the people. England may be said at this time to virtually have been a republic at the head of which was a magistrate. A monarch had been dethroned and beheaded. The people were in power. Furniture followed the inevitable trend of the times and became reduced often to mere outlines of its former grandeur. Withal, it was a quaint, picturesque, almost romantic style. Much of its influence was reflected in the furniture of the American colonists, to whom its simplicity had a distinct appeal.

**Government and Conditions of the Times:** Upon the execution of Charles I, Oliver Cromwell became the most powerful man in England. The whole period of the Commonwealth is marked by civil strife. The royalists proclaimed Charles II their king and the non-royalists or Independents appointed Cromwell commander-in-chief of their army, and later, in 1653, Lord Protector of the Commonwealth. The influence of this Puritan leader upon furniture, caused by his domestic policy, not only restricted art to more simple forms but in many cases demolished it. In his warfare with the royalists he was extremely severe, not hesitating to destroy many priceless works of art. "It was with Cromwell's approval as Lord Protector that the furniture, hangings, pictures, and other art effects of nineteen royal palaces were destroyed or sold to foreigners. Many a noble old piece of furniture was doubtless destroyed in sheer iconoclastic wantonness, revenge, or for firewood, or found its way into homes incapable of valuing such 'luxuries'." says Foley. However, it must be said, Cromwell's disregard for art and decoration tended to produce a solid, well constructed style which encouraged fine workmanship.

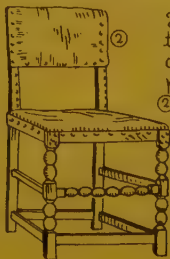
**Architecture:** Straight and severe. Very little decoration.

**Lines:** Square and rectangular. Low.

**General Appearance:** Cromwell was strictly religious and his hatred for the luxury of the aristocracy was evidenced



① Oak settle or settee dated by Macquoid and Edwards at about 1655, which was in the middle of the Commonwealth period. It is covered with cowhide. The stretchers and uprights are of knobbed or "sausage" turning.



These chairs embody the form and sparse decoration of the Cromwellian period.

② Has upholstered leather seat and back studded with nail heads.

③ Child's chair carved with leaf work. The turning of supports is typical of the period.



④ ⑤ ⑥ and ⑦

Represents the spool work characteristic of the Cromwellian furniture. This, with a little carving, was all the decoration that this furniture contained.

in his command for extermination of all things tending toward comfort and ease. One writer appropriately described Cromwellian furniture in the following manner: "The lines of all pieces were straight. The general effect is plain. Proportions were square and rectangular. The bulbous legs so identified with Elizabethan and Early Jacobean styles, were out of fashion. Bun or ball feet remained in style, however, this being due to the Dutch influence of the time. Underbracing was generally used, and was stout in effect, but turned underbracing began to come into use."

**Structural Details:** The chairs of Cromwell's time were supported by rail stretchers which were raised somewhat from the floor and in some cases set far back from the seats. It is said that most of the so-called Cromwellian chairs were imported from Holland, although it is known that chairs were made locally. It is interesting to note that chests during these times had only one drawer, but were called "a chest of drawers." Settles (a long straight backed bench) were to be found in almost every home and were entirely without decoration. The high backs and low seats were not conducive to comfort. During the Cromwellian period tables became wider and stood away from the wall. The gate-leg tables also made their appearance. Although the gate-leg table is known not to be inspired by cabinetmakers of the period, we do know that it came into being about this time.

**Decorative Details:** There is little to say of the decoration on furniture during the time of Cromwell. First, he did not believe in decoration, and consequently, the cabinetmakers neither dared nor wished to apply any decorative knowledge they might have had on the furniture they made. Mouldings, and simple turnings were practically all the embellishment used. The legs of the chairs and tables often terminated in bun or ball feet, owing to the Dutch influence. Chairs were upholstered in somber-hued materials and, inconsistent as it may seem, padding was used for the first time on the backs of chairs as well as on the seats.

**Woods:** Oak.

**Specialties:** Welsh dressers, gate-leg tables, settees, square backed chairs together with a number of the early Jacobean pieces.

**Modern Adaptations:** Cromwellian gate-leg tables are particularly adaptable to modern usage. The Welsh

dresser, made smaller, has also found response in Twentieth century tastes. The Puritan style can best be used in dining room furniture designs.

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## CHAPTER XX

### LATE JACOBEOAN OR RESTORATION

**Place:** England.

**Time:** 1660-1688.

Charles II, 1660-1685.

James II, 1685-1688.

**Sources of Inspiration:** Again the pendulum swings forward. The English people soon became tired of the Commonwealth, its rigid social discipline and of the uncompromising Cromwells. Charles II, a returned exile, is on the throne. Like so many children dismissed from the rigors of the school-room, the English people soon looked with indulgence upon royal antics which only a few years previous they would have condemned. Much of the beautiful and costly furniture in the castles and manors of England had been destroyed by the reformers and Charles found and took the opportunity of replacing it with furniture of a different type. It is natural that this furniture would reflect the continental association of the king and his accompanying associates and favorites. Charles also had fallen into the costly and none too creditable habit of having mistresses, two of whom exercised a notable influence upon the furniture of the Late Jacobean period. The first was "the Fair Castlemain", who subsequently became Duchess of Cleveland and the latter Louise de Queroualle who was created Duchess of Portsmouth. French ornament became decidedly in vogue, which with the coming use of walnut, lent itself with readiness to a striking English interpretation.



The outstanding creator of furniture beauty over this period was Grinling Gibbons, a carver. He was commissioned by the king to execute some intricate carvings consisting of "wonderful festoons, fruit and flowers, some of which it is said were so delicate that they would shake with the vibration of passing vehicles." (Burgess "Antique Furniture"). James II contributed little, if anything to the furniture arts except that his short and inglorious reign is chronologically included within the Jacobean period. He was tactless, impatient, and mismanaged nearly all political problems with which he was concerned.

**Government and Conditions of the Times:** England under Charles II, and James II, becomes more definitely a constitutional monarchy. Cromwell had "tamed its kings" and the Commonwealth defined more specifically the extent of their power. Parliament, which was essentially the voice of the people, became more universally recognized as the political mentor of the kingdom and the moulder of its economic destinies. Colonization continued and England's increasing commerce and industry steadily advanced her position as a maritime power. The recognition of the rights of the governed increased the initiative of the individual, encouraged ambition and laid the groundwork for a more spirited appreciation and use of home furnishings.

**Architecture:** Straight with a renewed use of curves.

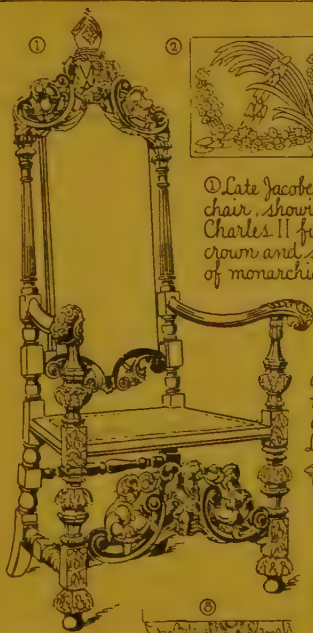
**Lines:** Straight and rectangular. Lighter than the preceding periods, but retaining a simple style.

**General Appearance:** The fact that Cromwell had destroyed so much of the royal furniture of Windsor Castle, gave Charles II an opportunity to refurnish his residence to suit his own taste. Grinling Gibbons, who was patronized by the king and queen, immediately went about his commissions of decorating Windsor Castle under the direction of Sir Christopher Wren.

Charles II furniture is characterized by the spiral turnings of the legs which are said to be of Indo-Portuguese influence. The chairs had caned and upholstered backs, the upholstery being of rich and colorful tapestries. The carving on all furniture was deep; the crown surmounting the tall carved frame of the caned back chairs was a conspicuous feature.

The Dutch style of carving was encouraged during the Late Jacobean period, perhaps because of Charles II and many of his contemporaries having spent their period of





① Late Jacobean, Grinling Gibbons carved chair, showing principal features in Charles II furniture. The use of the crown and shield indicates the return of monarchical power in England.

② Panel by Sir Christopher Wren and Grinling Gibbons.

③④⑤⑥ and ⑦ are table and chair legs and terminals turned and carved, characteristic of Late Jacobean furniture.



⑧ Moulding and frieze frequently found on Jacobean furniture. ⑨ "S" strap leaf carving employed in connected frets during this period.

⑩ Fore section of Jacobean day bed with early type of carved stretcher. About 1665.

⑪ End section of similar day bed with later type of stretcher. About 1675.



exile in Flanders. Chests on stands with twisted rails and supports were mostly constructed of oak, but walnut was coming in and, when it did, it came with a rush. Moulded paneling was also a distinctive feature of Late Jacobean furniture; these panels were arranged in geometrical lines and took the place of the inlays of Elizabethan days. It was during this period that the chest really came into its own and was considered an important piece of furniture.

**Structural Details:** The gate-leg table retained its popularity. These tables were largely oval-shaped and constructed in three parts: the central part and two flaps on the sides which lowered when the legs were drawn out from under them. The dining tables became of greater width from the Restoration days onward. This was due, no doubt, to a greater strength of security enabling the guests to be served from either side of the table, which was placed in the center of the room. In earlier times, it will be remembered, the tables faced the servers and the guests sat with their backs to the walls.

French influence was felt both in construction and decoration in the furniture styles during the reign of Charles II. This was in apery of the French courts. During the reign of James II the immigration to England of some 30,000 or 40,000 French craftsmen and their families brought about a more decorative type of furniture. The Barocco influence with its use of curves and festoons perhaps encouraged the use of walnut as a structural wood in England because it was more easily worked than the harsher oak.

**Decorative Details:** Underbracings were much used during the Late Jacobean period. Some of these stretchers were elaborately carved and placed across the two front legs. Spiral turnings were a characteristic of Charles II furniture and the motifs of James II were roses, acanthus leaves, floral scrolls and carved crowns. The floral decorations undoubtedly came with the French immigrations. Brass hardware was used on the chests and table drawers. These were of simple patterns and added decoration to the pieces. Chairs and settees were richly upholstered in beautiful needlepoint, velvet and brocade. Cane backs in walnut frames, which were richly carved, are a particular feature of the Late Jacobean period. The scroll foot was used on chair, table, settee, and bed terminals. The carved crown, indicating the Restoration, is another feature to remember of this period.

**Woods:** Oak and walnut.

**Specialties:** Chairs, tables, settees, chests, cupboards, couches, dole-cupboards, bookcases, arm-chairs, gate-leg tables, buffets and some small pieces.

**Modern Adaptations:** Late Jacobean furniture is particularly adaptable to public buildings, reception rooms and halls of private homes, churches, and in dining rooms which have paneled walls.

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*Furniture.* Esther Singleton.

### CHAPTER XXI

#### WILLIAM AND MARY

(Age of Walnut)

**Place:** England.

**Time:** 1689-1702; William and Mary, king and queen of England.

**Sources of Inspiration:** The coming of a Dutch king to England as the royal husband of a domestic, home-loving English woman with whom he was to share the throne, together with the co-incidental adoption of walnut as a furniture wood superior to the traditional oak, formed the nucleus of vast and significant changes in the style of English furniture of the time. The splendor of Charles II still obtained in English palaces and halls but it was not long before the country learned that royal furniture partook of new characteristics and that those characteristics were principally Dutch. The burning of Whitehall palace gave William and Mary the same opportunity of providing something new that was afforded Charles II

at the close of the Commonwealth. Tudor architecture and the French-Italian interior sumptuousness gave way to furniture more generally intended for a home than a regal palace. Queen Mary, herself skilled in needle work, with her ladies in waiting, contributed the product of her own hands to the beautiful coverings of the period. At this time was established the *petit point* needle work, so characteristic with early walnut upholstered furniture and which, from time to time, re-asserts itself in modern productions. This period may be said to have rendered a distinct contribution to the furniture arts in that it established the fact that furniture could be beautiful and still be simple and within the reach of a greater number of users. The rich and extreme ornament used to beautify furniture during the time of Charles II and Elizabeth placed decorative furniture beyond the reach of but the few whose economic standing and political influence brought them within or near the court circle.

**Government and Conditions of the Times:** William III, king of England, was the son of William II, Prince of Orange and stadtholder of the Dutch republic, and Mary, the eldest daughter of James, then Duke of York, who later became James II of England, thus fortifying, through marriage, his destined claim upon the English throne. A courageous warrior, an able statesman, though none too scrupulous when the occasion reflected his own interests, backed by an intimate knowledge of the Dutch constitutional government, which was not unlike that of England, William III was altogether a constructive monarch. His two great accomplishments were the peace of Utrecht, from which Europe benefited for twelve years and his overthrow of the power of France, from which England gained perhaps more than any of the continental powers. He increased the liberties of worship to "dissentors" through the "Toleration Act" and calmed the violence of party passion. His domestic virtues, however, were not as pronounced as has generally been assumed because of the association of his name with that of his thrifty and home-loving queen. He often treated her with little deference and showed marked partiality to worthless and dissolute paramours. He died in the height of his popularity in 1702. The conditions of the kingdom remained somewhat the same as during the period of his predecessor. Historians have criticised William III for not recognizing more fully the system of party government and because of a weak and unaggressive colonial policy.

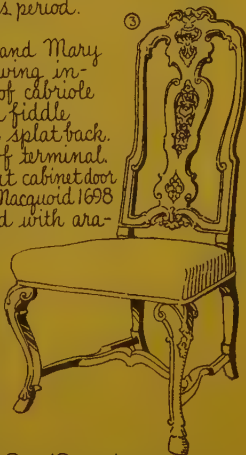
① Walnut stool showing deeply carved construction. The heavy serpentine underbracings are characteristic of William and Mary furniture. Stools at this period were in popular use.



② William and Mary chair, dated by Lenygen at about 1695. It is an excellent representation of chairs of this period.



③ William and Mary chair showing introduction of cabriole leg and fiddle shaped splat back. Note hoof terminal.  
④ Walnut cabinet door dated by Macquoid 1698 decorated with arabesque marquetry.



⑤ and ⑥ are types of decoration used in moulding and interlaced ornament. ⑦ section of table top veneered with lignum, visae amboyne and other woods.



**Architecture:** Graceful, slender and a lighter style than had previously characterized English furniture.

**Lines:** Rectangular, with usage of both straight and curved lines.

**General Appearance:** The furniture during the reigns of William III and Mary, was perhaps, the most comfortable to appear in England up to this time. Mary encouraged the use of upholstery and the cabinetmakers of the time had all the freedom to create furniture according to their own tastes. However, as most of the craftsmen were either from Holland or France, the influences of both of those countries were felt in every piece of furniture made.

Chinese, Spanish, Near and Far East and fantastic motifs of India were other influences noticeable in William and Mary and Queen Anne furniture. Carving prevailed as a decoration on chairs and sofas while veneers and inlays were preferred in cabinets and tables. The hooded top was one of the most characteristic features of William and Mary cabinets. The broken "C" curve, which originated with Charles II, was much used in furniture design of this period, together with fruit, foliage, wheat ears, flowers, cupids and dead game, worked by Grinling Gibbons. The bedsteads continued to be canopied with hangings of velvet and other rich fabrics. Enormous plumes often surmounted each of the four corners of such beds.

**Structural Details:** The structure of the furniture during the time of William and Mary carried many of the same features which characterized that of the Late Jacobean furniture. The student will particularly notice that the stretchers on the chairs have changed and become more elaborate. Helen Churchill Candee says, in her book on "Jacobean Furniture" that "It was when the larger pieces of furniture took on a certain lightness of effect that a change in their stretchers occurred, and this was in the period of William and Mary. The stretcher became wide, flat and serpentine. In chairs it wandered diagonally from the legs, meeting in the center. In tables its shape was regulated by the size of the table top. In chests of drawers it wavered from leg to leg of the six which, like short posts, supported the weight. If the piece of furniture was inlaid, these flat stretchers offered fine opportunity for continuing the work."

Open cupboards became the fashion when Queen Mary set the style for collecting Chinese porcelain bric-a-brac. A cabinet with a shelf top protected by glass made a show

place for these trinkets and the strongest feature of the design was the hood over this top. This hooded effect was also carried out in chairs and settees. Legs of chairs, tables, settees, cabinets and other upright pieces took on many shapes. Some were octagonal or trumpet-shaped; others spiral turned; Dutch cabriole, and the Flemish scroll leg. The inverted cup was often used in the turning of the trumpet-shaped leg. The feet, similar to the legs, appear in many shapes, borrowed from the designs of all countries. The Spanish scroll, the Dutch bun foot, Dutch ball-and-claw were influenced by the continent and the block foot, which had been in use in England for some time, was also favored.

Chair backs were devoid of curves, retaining the Late Jacobean rigidity; seats were square.

**Decorative Details:** Grinling Gibbon, or Gibbons as he has lately been called, was a close friend of King William III. The royal householder turned over his castles to Gibbons and although he did not always allow Gibbons to work as he desired, some decorative effects were achieved. This master craftsman carved motifs of flowers, foliage, cupids, wreathes, "C" scrolls and serpentine designs. Carving was often gilded, painted or lacquered. Tasseled fringe frequently decorated the edges of the luxuriously upholstered day-beds, couches and chairs. Silver furniture was also in use and this was elaborately engraved and carved.

Marquetry, undoubtedly of Dutch origin, was employed to an unusual extent during the period of William and Mary's reign. It was quieter, however, and more colorless than during the Late Jacobean and the chairs were less decorated and more dependent upon graceful curves. The flower of the "*Garrya Eliptica*", formed one of the most favored motifs for carving on backs of chairs, stretchers, etc. This flower, like the acanthus, was conventionalized and made a particularly striking design.

**Woods:** Walnut, pear, lime, sycamore, and other soft woods.

**Specialties:** Cabinets, settees, chairs, tables, consoles, kneehole desks, canopied beds, and many smaller pieces.

**Modern Adaptations:** William and Mary furniture, because of its lightness and grace, is particularly adaptable to modern homes. Dining room, living room, hall and



occasional pieces are especially desirable in this period of design and construction.

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## CHAPTER XXII

### QUEEN ANNE PERIOD

(Age of Walnut)

**Place:** England.

**Time:** 1702-1714.

**Sources of Inspiration:** At this juncture it is fitting to call the student's attention to a possible confusion in period identity. Beginning with the furniture period of William and Mary, continuing through that of Queen Anne and into Early Georgian, there is an interlocking sameness that renders a definite distinction of each period somewhat difficult. Writers on furniture and authorities on style have differed as to the respective limitations of these periods. William and Mary furniture has therefore frequently been referred to as belonging to that of Queen Anne and the furniture of Queen Anne as belonging to the Early Georgian. The artistic tone, however, both as to structure and decoration is relatively the same from William and Mary until well into the Georgian period and the advent of Chippendale. Furniture continued to be influenced by Europe and Anglo-Saxonized by English artists and craftsmen. Comfort continues to be an essential part of furniture construction, both as to its accommodation of the body and restfulness to the eye. All of these periods may be said to represent a very high standard of furniture thought and of an equally natural and pleasing artistic beauty.

English furniture design of this time, however, was not borrowed or plagiarized from that of Europe. "In summing





① A center table dated by Rogers at 1710 after the style of Queen Anne. In this piece the frieze is curved, the cabriole leg being a continuation of the pattern. Carving and gilding form the principal decorations.



③ Carved wall bracket, gilded, and made of soft wood. Dated by Macquoid and Edwards approximately 1705.



② Artistically conceived settee from the period of Queen Anne. In this decoration the scallop shell is an outstanding motif. The back is decorated with marquetry.



⑦ Moulding decorated with the scallop shell and foliage motif.



④ ⑤ and ⑥ show the development of the Cabriole leg during the Queen Anne period.

up the seventeenth century," says Candee (Jacobean Furniture) "as a whole, it seems to show a British and insular attempt to form its own styles, to dress its homes and palaces in a British way, regardless of what the world elsewhere was doing. \* \* \* They never adopted intact with all the feeling of foreign thought shining from their elegant surfaces, but rather were cut apart and certain bits were used to tack onto the more British work."

**Government and Conditions of the Times:** Anne, Queen of Great Britain and Ireland was the second daughter of James, Duke of York, later King James II. Her mother was Anne Hyde, daughter of the Earl of Clarendon. In 1683 she married Prince George of Denmark, with whom she lived a life of great domestic happiness. On the death of King William III, in 1702, Anne became Queen of Great Britain, her reign becoming one of the most brilliant in the history of England. She was pious and religiously devout and although living in politically turbulent times, managed to weather the storms with the respect and loyalty of her subjects. She was a woman of no great ability and the brilliancy of the reign may be said to be largely due to political developments and economic progress. She took little if any, interest in the art and literature of the times, but possessed virtues of moderation and kindness. She well deserved to be called the "good Queen Anne."

**Architecture:** Graceful and elegant. Light and comfortable.

**Lines:** Curved and swerving, with a moderate use of straight lines, softened by rounded corners.

**General Appearance:** Furniture during the period of Queen Anne's reign was becoming more standardized and manufactured in considerably larger quantities. The rich were no longer the only ones to enjoy good furniture, and the commoners furnished their homes in a more liberal and thoughtful manner.

Walnut was used almost exclusively. The use of marquetry was now confined to small panels or a restrained design in seaweed or arabesque. Carving was limited almost entirely to the decoration of the legs of chairs, settees, stools, tables and other leg furniture. Carvings on the backs of chairs, when used, was done in low relief and applied on the surface of the veneers. The fine figure markings of the wood compensated for the lack of other ornamentation and the skilled work of the pattern-makers did much to make this furniture beautiful and tasteful.

At the end of the reign of Queen Anne, the cabriole leg acquired a bolder contour and was freed from stretchers. These legs often terminated in the club, claw-and-ball foot, and the shell was used occasionally. Acanthus foliage frequently decorated the knee of the cabriole legs. When arms were used they flared outward or were gracefully curved.

**Structural Details:** The Dutch influence is very noticeable in Queen Anne furniture, as shown in the use of marquetry, and the Dutch foot. The duck, pad, club, web, bun, hoof, and paw feet were also used. The furniture was lighter, a little higher than furniture of previous periods and rectangular in shape. The seat fronts of chairs, settees, stools, etc., were slightly curved and the cabriole leg became one of the distinguishing features. Cockle shells were used to form the hooded or "bonnet" tops of cabinets. The broken pediment was also in use. The backs of the chairs had broad central splats in fiddle shapes, spooned comfortably to fit the body. Winged headcrests were used on upholstered furniture. The seats of the chairs were both broad and narrow, the front corners being rounded or having a double curve. The backs of the seats were considerably narrower than the fronts. Stretchers disappeared almost entirely, although they were used to some extent in the beginning of Queen Anne's reign. Cane backs also disappeared during this period.

**Decorative Details:** Sir Christopher Wren, the architect, was a staunch friend of the "good Queen Anne." He and Grinling Gibbons decorated and designed many of the pieces used by Queen Anne and her contemporaries.

The cabriole leg is traced back to China and Egypt and was introduced into England through Holland and France. The claw-and-ball foot is generally accepted to represent the three-toed claw of the Chinese dragon holding the mystic Buddhistic jewel. Gilt and embossed leather is found on some of the upholstered furniture as well as silk, velvet and tapestry. Canvas, worked with "petit" point was not uncommon. The scallop-shell was the most favored motif for the carver's knife, although foliage, acanthus leaves and floral patterns were also used.

Lacquering had reached its height in 1710 and continued for many years later. The art of "Japanning" was taught at the early Victorian seminary and during this period young ladies were also taught to use lacquer. Collecting small Chinese, Japanese, and Indian porcelain ob-

jects was in vogue. Lacquer, with the use of veneers, formed an important type of furniture ornamentation of the day. Many chapters on the subject of lacquer furniture were written during this period, pointing out that every piece made in walnut was also made in English lacquer. Wainscoting was frequently decorated with lacquer. Cabinets with their many drawers, both visible and secret, were lacquered inside and out. Black and red backgrounds have survived to this time.

**Woods:** Walnut, oak, pine, lime, ash and other soft woods.

**Specialties:** Chairs, tables, settees, love-seats, mirrors, stools, chests of drawers, tallboys, cabinets and china cabinets, secretaries, bureaus, writing tables, clocks and clock-cases, card tables, tea-tables and other small pieces.

**Modern Adaptations:** Queen Anne period design is among the favored in modern times. Dining room, bedroom with the exception, perhaps, of the bed, occasional pieces and living room and hall furniture are patterned after the furniture of this period and fits into our modern small homes with grace and elegance.

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#### CHAPTER XXIII

##### EARLY GEORGIAN

**Place:** England.

**Time:** 1714-1760.

**Sources of Inspiration:** In 1714 political destinies and

royal primogeniture placed George I, a German king, on the throne of England. Though strange to say, neither he nor his court materially changed the development of English furniture in either style or ornament. Quite to the contrary, English cabinetmakers found and availed themselves of the opportunity of carrying into English furniture their own individualities under the guidance and inspiration of British preference. There is in the furniture of this period a noticeable mixture of French, Flemish and English thought which in a more technical way may be said to have found its inspiration in Italian Baroque. During this period begins in a small way a definite socialization of furniture of which the custom of tea drinking is a noteworthy example: This custom or fad, resulted in many artistic and luxurious departures in furniture forms, such as tea tables, stands, dumb waiters and even chairs designed to meet the particular atmosphere of the social tea.

By far the most important event and one which has more than any other occurrence enriched furniture both in form and beauty, was the introduction of mahogany. Many and varied are the stories which have been told as to how mahogany was discovered for furniture use but probably the most interesting and plausible appeared in an article in the "Art Journal" May issue, 1881. The paragraph follows: "Its introduction was somewhat curious, mahogany, being first sought for as a medicinal substitute for the 'Jesuit bark', and many treatises on its therapeutic virtues were written. About the year 1720 some planks of it were brought to Dr. Gibbon by his brother, a West Indian captain, and the doctor, thus having more than he would be likely to want for medicine, proposed having some of these planks used in a house he was then building in King street, Covent garden. The carpenters, however, found the wood too hard, and the planks were laid aside as useless. Soon afterwards, Mrs. Gibbon wanted a 'candle box'—an article of household furniture now extinct—and Dr. Gibbon called in his cabinetmaker, one Mr. Wollaston, to a consultation. The planks were examined in the garden where they had lain some time, and he, too, declared he could make nothing of them, as the wood was too hard for his tools. 'Get stronger tools, then,' said the doctor, who, fortunately, was an obstinate man, and the result was a beautiful candle box the like of which had never before been seen. Indeed, so beautiful was it that the doctor immediately ordered a bureau made from the discovery, and invited his friends

to come and see the wonder. All fashionable London came and the Duchess of Buckingham begged some of the wood which was left: of it she made at once both furniture and a fashion, and thus mahogany became duly installed in the English home."

"How much truth there is in the above is a matter of speculation," says Charles Over Cornelius (*Mahogany Antique and Modern*) "but such an incident may account for the beginning of a vogue. If its medicinal virtues were believed in, a small import of mahogany for years before this date may be taken for granted and its introduction through a physician's interest would be natural."

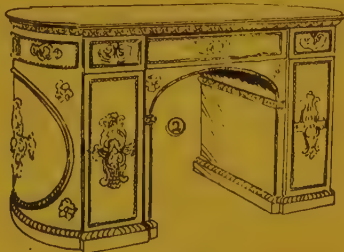
**Government and Conditions of the Times:** Like William III, a quarter of a century previous to this period, George I found himself practically a stranger in a strange land. He ascended the throne at the end of a great political struggle with no other apparent ambition than to secure for himself and his family a high and influential position. He attached himself entirely to the Whig party, which while not as strong numerically as the Tories was nevertheless in power. He was succeeded by his son George II. The foremost personality of the time was Sir Robert Walpole who was the first to rise by skill and management of parliamentary affairs to the almost royal position of Prime Minister.

**Architecture:** Resembling Queen Anne style but heavier with a notable architectural improvement due to the period of architect-cabinetmakers.

**Lines:** Curved with limited use of straight lines.

**General Appearance:** As in the period of Queen Anne, the Chinese and French influence continued to hold sway in Early Georgian furniture. There is, also, a trace of Gothic design and many of the contemporary writers bitterly regretted the departure from the classical designs of former days. Isaac Ware, a contemporary writer, bemoans: "It is our misfortune to see at this time (1756) an unmeaning scrawl of 'C's' inverted, turned and hooked together to take place of Greek and Roman elegance, even in our most expensive decorations. This is not because the possessor thinks there is or can be elegance in such fond, weak, ill-jointed and unmeaning figures; it is usually because it is French; and fashion commands that whatever is French is to be admired as fine."

The coming of the use of castors on chair and table feet are one of the features in distinguishing Early



① A mahogany long case clock of the Early Georgian period. The torch between the terminals of the broken or interrupted pediment was a characteristic decoration during this time.

② Writing table designed by William Kent in the Early Georgian style. It was made of mahogany with rounded ends, carved and gilded.



③ Pedestal with acanthus leaf, vine decoration, & gilded carvings. Early Georgian period.



④ and ⑤ are wall brackets of classic and period design. ④ is carved and painted. ⑤ is painted with carving gilded.



Georgian furniture from that of Queen Anne. In the early years of the Georgian period there was also an introduction of eagles' heads on the arms of the chairs with the beaks turned outward. The escallop shell was still used as a decorative motif on the cabriole legs of chairs and tables. Richly upholstered and gilded furniture was found in almost every room of the English home during this time. In 1725 a flatter ornamentation was introduced which often decorated the mouldings of the furniture, giving an altogether lighter appearance. Although mahogany came into use during Early Georgian times, walnut was still a most important cabinet wood.

**Structural Details:** It is of particular interest to the student to note that the Early Georgian period marked the first step away from royal direction of taste. The European continental influence was waning and the English cabinetmaker had more opportunity to exert his own skill and craftsmanship on the furniture he builded. As much of the furniture made during this time was designed and created by architects to fit the homes for which they laid the plans, it perhaps became a little heavier and with a more noticeable architectural influence. Legs of the chairs were in keeping with other ornament. Scagliola was substituted for marble and this was laid on mahogany bases which were sometimes gilded. The claw-and-ball foot still predominated, as did the hoof and paw feet.

The fronts of bookcases, cabinets, dressers, etc., were designed in a heavy dignified manner, following the accepted proportions of masonry structures. The order of Roman architecture is seen in the attached columns or pilasters surmounted with entablatures and pediments. On chairs the open splat, decorated at first by a series of narrow vertical cuts, was quickly adopted. The seat backs were less arched and squared at the corner junctions with the back uprights.

**Decorative Details:** The lion and satyr mask was in use considerably before the beginning of the Georgian period, but it was favored to a marked extent during this time and became one of the distinguishing motifs of the furniture decoration. Masks and heads of lions are seen on the knees of cabriole legs, terminated by realistic feet. Stools and settees were particularly ornamented. Satyr heads in high relief were often carved in the midst of conventional honeysuckles. Winged satyrs were used in conjunction with lions' and claw-and-ball feet. These motifs were also used with the acanthus leaf motif for lighter ornamentation.



tation. The cabochon and leaf design were used on the knees of cabriole legs. At a later period Chippendale used this type of embellishment to some extent.

In 1747, Strawberry Hill, Twickenham was "done over" in Gothic by Sir Horace Walpole. That Horace Walpole was entirely responsible for this revival, however, is disputed. But it was about this time that a feeble attempt for a Gothic revival was attempted and chairs with cabriole legs, claw-and-ball feet are occasionally seen with splats pierced with designs of tracery, crockets and cusps and ogee arches. The stretchers reappeared with the Gothic revival.

Mohair, silks, velvets, tapestries and other fine fabrics were used to upholster furniture, and in fact, to decorate a whole room. There was a fashion for "blue rooms", "red rooms", etc., so called after the colors in which they were decorated.

**Woods:** Mahogany and walnut.

**Specialties:** A variety of tables, chairs, couches, dressers, and cabinets; sideboards, bookcases, writing desks, wardrobes, etc.

**Modern Adaptations:** Like Queen Anne furniture, Early Georgian will always find a place in our modern homes. Modified, it makes a charming period design for dining room and bedroom furniture. Card tables, and occasional pieces are particularly attractive in this period of design.

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## CHAPTER XXIV

## REGENCY AND LOUIS XV PERIOD

## (Rococo)\*

**Place:** France.

**Time:** 1715-1774.

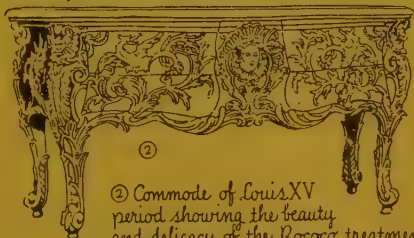
**Sources of Inspiration:** The predominating influence in the Rococo style of art, as expressed in the furniture of this period, is Chinese. Objects of Chinese art, Chinese paintings and decorations were much in vogue and furnished new and fascinating subjects for painters, decorators and makers of furniture. Generally the style is regarded as free and unrestrained. George Leland Hunter characterizes it as a "naturalistic style", in which "symmetry is avoided like the pest. Leaves and flowers and nature forms generally are no longer tortured into unnatural regularity. Metal and woodwork became almost fluid in their power to express the devious sinuosities of Nature." (Decorative Furniture). Louis XV furniture is as irregular as that of Louis XIV is regular. It is regarded as the most distinctive decorative furniture style in the world and was the result of a great change in the economic conditions of the French nobility. At the death of Louis XIV, the public coffers were depleted, the people exhausted from excessive taxation and the nobility bankrupt. To recoup their vanished fortunes, and to keep up with the extravagance of the times, the nobility intermarried with the rich bourgeois. "—the abandonment of the great state receptions of the late king and the pompous and gorgeous receptions of his time, gave way to a state of society in which the boudoir became of far more importance than the salon, in the artistic furnishing of the fashionable house. Instead of the majestic grandeur of immense reception rooms and the stately galleries, we have the elegance and prettiness of the boudoir." (Litchfield Ill. Hist. of Furn.). This accounts mainly for the sudden reduction in size of Louis XV furniture as compared with that of Louis XIV. In the light of our modern concepts of social progress, it is a sad commentary on the past to say that out of a marked social decay came many beneficial fruits. From the court scandals of Henry IV, the intriguing favorites of Louis XIII and the mistresses of Louis XIV and XV, the furniture of the times re-

\* Style of decoration distinguished by a delicately executed ornament in imitation of rockwork, shells, foliage and scrolls massed together.

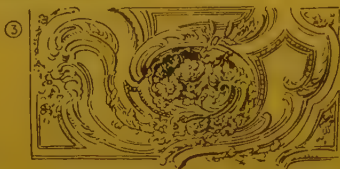
① This console is a very typical example of the freedom of Regency decoration and structure.

Grotesques, mascarons, shells, feathers and other highly ornate motifs were constantly employed.

The furniture was gilded taking away some of its obtrusiveness and adding a softness to this overly embellished style.



② Commode of Louis XV period showing the beauty and delicacy of the Rococo treatment on cabinet surfaces. This commode has a marble top and the carving is gilded. Part of the carved design is used as handles on the upper drawers.



③ Decorative paneling was one of the features of Louis XV period furniture.

This panel shows medium rather than extreme ornament.



④ Typical chair of the Louis XV period.

ceived much of its incomparable richness and distinction. Royal mistresses reached the height of their fame and influence under Louis XV in the person of Madame de Pompadour, who, in 1745, succeeded the Duchess de Chateauroux in the king's favor. She was a woman of seemingly good impulses, a lover of arts and letters and displayed a marked appreciation of the finer things in life. She was succeeded by Madame du Barry, whose influence upon the king was absolute until the time of his death. These adventurous women exercised a marked influence upon the furniture arts of their time and with the means, lavished upon them by royal favor, contrived to bring forth examples of beauty and art which have seldom, if ever, been equalled.

**Government and Conditions of the Times:** Absolute monarchy. The social corruption of court and nobility continued under Louis XV though more on a private than public order. The king attained his majority at the age of 13 years, previous to which, for eight years, the affairs of state were administered by Philip, Duke of Orleans, who died in 1723. This period is known as the *Regency*, during which time a type of furniture was produced which differs in some essentials from that of Louis XIV and Louis XV. The reign of Louis XV contained all the vices and errors to which a hereditary monarchy has ever been subjected, and increased in the minds of the French people the growing opposition to their rulers and their policies. Louis XV was a weakling and a disappointment to the stabilizing and progressive elements in the kingdom. While retaining the pretense of personal rule, he had neither the mind nor the courage to govern, with the result that the affairs of the country sank to a low ebb. Military failure, faulty and mistaken fiscal policies, extravagance and immorality, lowered the influence of the government at home and the credit and standing of the country abroad. It was but another step toward an inevitably disastrous end.

**Architecture:** Small in comparison with Louis XIV furniture, with an abundance of curved lines. Delicate and graceful.

**Lines:** Curved, swelling and sinuous.

**General Appearance:** Under the Regency many new objects appeared. Commodes and chiffoniers with many drawers: secretaries that concealed a multitude of things under closing panels; falling flaps on the sides of writ-

ing tables and other pieces showed a loosening of restraint from the style of the old king, Louis XIV, who had just passed away. The furniture of the Regency can scarcely be called period furniture. It came into being during the eight years preceding Louis XV's ascendancy to the throne. Everything, including the arts, felt the influence of a new freedom; the expectancy of new rulers and regimes.

When Louis XV ascended the throne of France, furniture continued its decorative and beautiful course. Delicate contours and the appearance of many new and more comfortable pieces showed a strong feminine influence in the courts. Ladies' writing desks, cabinets, dressing tables, corner commodes and the ever-present mirrors were graceful and dainty in construction and decorated with charmingly colored silk, tapestry and embroidered covers. In 1760, however, furniture lost many of its curves and undulations. Bronze ornament, which was profusely used in the early part of Louis XV's reign, became more restrained and the feminine frippery declined in favor. Undoubtedly, this return to a more quiet style was due, to a great extent, to the simple tastes of Mme. de Pompadour, who so greatly influenced the style in the arts of France.

**Structural Details:** The furniture of the Regency departed in design and form from the furniture of Louis XIV. Jacquemart in his book "History of Furniture," states: "Form usurps unheard of license; every object swells itself to assume fantastic curves; nothing is straight or rectangular; angles are rounded or hollowed; forms alone are admitted and above sprouts bronze vegetation with unnatural endive foliage; brass gilded with ormolu rolls along in fantastic borders or gathers suddenly in unfortunate clusters, twists itself in encoignures, or forms detached wreaths and thus an eccentric whole is complete, which while always clever, is sometimes elegant notwithstanding its singularity." Regency furniture can scarcely be separated from either the periods of Louis XIV or Louis XV. It retains many of the integral points of each of the two styles.

Under Juste-Aurele Meissonier of Turin, who was in turn a goldsmith, architect, sculptor and ornament designer, and who fathered the Rococo design, all balanced patterns were abandoned and the structural line became curved. No plain surfaces appeared on any piece of furniture. Wherever there was a plain surface to carve, a leaf, shell-rock or ribbon embellished it. Veneers and mar-

quetry formed important decorative features and many bold designs were executed in a number of species of wood. The arms of chairs and settees were short and flared; sharply curved supports joined the seat-rail far back from the front. The backs of these pieces were broad with curving outlines, the frames being profusely carved. Upholstering in rich fabrics and colors decorated almost every chair and settee; no underbracings appear on Louis XV furniture. The terminals of chair and table legs were scrolled leaf or dolphin head patterns.

**Decorative Details:** "The death of Louis XIV was not, as a matter of fact, the signal for a sudden revolution in artistic affairs. The old king had in his declining years shown himself in favour of a less formal style of decoration in his surroundings, which was the first step towards the relaxation of the formality that had hitherto prevented the use of the exuberant types of ornament which were introduced from Italy," is the explanation given by Elisa Maillard in "Old French Furniture and Its Surroundings."

The decorative theme of Louis XV furniture may well be called Chinese. The French East India Company had flooded the country with products from the Far East, and France sent many embassies to the Oriental countries. Robert Martin, a carriage painter (who painted heraldic and mythological pictures on the doors and panels of carriages) developed at this time a secret process of making a finish or lacquer called "vernis martin," ("vernis" being the French word for "varnish") that became one of the favorite furniture coatings of the day. In describing the furniture of Louis XV's time, Litchfield points out that "the curved endive decoration, so common in carved woodwork and in composition of this period, is seen everywhere; in the architraves, in the panel mouldings, in the frame of an overdoor, in the design of a mirror frame; doves, wreaths, arcadian fountains, flowing scrolls, cupids and heads and busts of women terminating in foliage, are carved or moulded in relief, on the walls, the doors and the alcoved recesses of the reception rooms, either gilded or painted white; and pictures by Watteau, Lancret, or Boucher, and their schools, are appropriate accomplishments."

Rich heavy reds, greens and blues used in tapestry, silks and other textile decorations replaced the pale yellows, rose, delicate green, and light blues of Louis XIV.

Undoubtedly, the most brilliant period of decorative furniture in France—or perhaps in any part of the world—covers the years between 1735 and 1765.

**Woods:** Tulip, rosewood, holly, maple, laburnum, purple wood; pear, lime and other light colored woods were used for decorative purposes. Mahogany, walnut, and ebony were used for construction.

**Specialties:** Tables, dressing tables, chairs, settees, chaise longues, commodes, corner commodes, cabinets, writing desks, secretaries, canopied beds, bookstands, etc.

**Modern Adaptations:** Louis XV furniture, because of its interesting and decorative design, size and richness, adapts itself very well to modern usage, though not without proper settings.

### BOOKS FOR REFERENCE

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*French Furniture and Decoration in the Eighteenth Century.* Emilia F. S. Dilke.

*The Decorative Periods.* Chandler Robbins Clifford.

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*Style in Furniture.* R. Davis Benn.

*French Styles in Furniture and Architecture.* Eduard Bajot.

## CHAPTER XXV

### THOMAS CHIPPENDALE STYLE

**Place:** England.

**Time:** Baptized June 5, 1718, died 1779.

**Sources of Inspiration:** During the time in which Thomas Chippendale lived and achieved his fame as a cabinet-maker for the exclusive homes and royalty of England, there was a period of advancement in science, art, literature and religion. The intellects of the country established such societies as the Royal Society, The Society of Antiquaries, the British Museum and other groups whose pursuits were those of knowledge and culture. Oliver Brckett in his book "Thomas Chippendale", in one paragraph gives a picture of Chippendale and his work. To quote: "Further, a variety of terms, such as 'Chinese-



Chippendale', and 'Chippendale Gothic' seem to have crept into the national vocabulary, at least among those who are concerned with such matters; but \* \* \* he was not the inventor of any of these curious fashions of the mid-eighteenth century, although by his strong bent for advertisement he did more than anyone else to make them familiar to the public. Critics, from time to time, labour the point that he stole freely and without acknowledgment from any source of inspiration which presented itself. There is reason for these charges. His outlook, however, was confined by circumstances, and where he borrowed he added style and distinction. In his time, again, many new types of furniture which are known to us first through the pages of the 'Director' came into common use, and although it is hard to decide how far Chippendale's own invention contributed to this result, it would be ungenerous to deny him any credit that may be due him as a pioneer."

Little is known of Chippendale's personal life. We know him only through his beautiful furniture creations and his writings on the subject to which he devoted his life. He married twice, was the father of eleven children, and died of consumption at the ripe age of sixty-one or sixty-two. He moved his family and his work to London in 1755 when he was about 37 years old. There he established his shop in St. Martin's Lane where he continued his active business until his death. "The Gentleman and Cabinet-Maker's Director" received its first publication in 1754. The second edition of the book appeared in 1755 and the third and last edition appeared in 1762.

**Government and Conditions of the Times:** George II occupied the throne of England during Chippendale's most active years. George III succeeded his father at his death in 1760 and it was during his reign that America declared her independence from England's rule. The Late Georgian, of which this period is a part, was marked by industrial, cultural and social progress.

**Architecture:** Graceful and well-proportioned.

**Lines:** Sinuous curves and straight lines.

**General Appearance:** The style in furniture produced by Thomas Chippendale was a result of a steady though rapid development. The earlier works of this master bear the features of the Early Georgian period influence and it is also noticeable that he made some walnut furniture,





① Study for a commode table by Chippendale illustrated in the third edition of the "Director" and dated 1760.

② Chippendale Gothic chair from the first edition of the "Director" 1754. This shows how Chippendale illustrated his furniture giving the buyer in this instance the choice of three different types of legs.



③ Chippendale sofa from the "Director", his own book, showing both Rococo and Chinese influence. One of the most fantastic of his creations. Legs in Chippendale style

④ Extreme Rococo ⑤ Rococo Chinese ⑥ Rococo Gothic.



⑦ ⑧ and ⑨ are Chippendale frets as illustrated in the "Director". ⑧ Note the purity and exquisite balance of design.



although many furniture writers accredit him only with the production of mahogany pieces.

Chinese, French and Gothic were predominating influences in the Chippendale style although he, himself, denies copying when he states, "In executing many of the drawings my pencil has but faintly copied out those Images that my Fancy suggested."

As Chippendale was as good tradesman as he was artist, it is impossible to describe his furniture with any set phrases. Many of his customers had preconceived ideas as to what style or design of furniture they wanted in their homes, and Chippendale made it. But as a general rule his furniture was fanciful, and decorated with carved figures, birds and ribbons. Burgess in "Antique Furniture" segregates the Chippendale period into the following divisions:

- "1725, The earliest departure from then existing styles.
- "1735, French influence apparent, marking in its adaptation by Chippendale a new style.
- "1745, More floral devices and early traces of Chinese taste.
- "1750, Chinese taste more predominant. A lighter appearance and more French decoration.
- "1760, Gothic designs. A greater extravagance in design and decoration."

**Structural Details:** All articles made by Thomas Chippendale and his son were well proportioned and graceful in design and contour. His furniture was not altogether comfortable, however, because of the sharply carved decorative backs. The woods used in construction were well-seasoned timber as shown by the fact that many pieces have withstood more than one hundred and fifty years without warping or cracking.

The early pieces by Chippendale bore characteristics such as the cabriole leg, center splats and bars, pierced and scrolled. The "all-over" backs, which came a little later, were almost all filled in. The latter had square legs, perforated and incised. The ladder-backs which made their appearance at a later date took their name from their resemblance to the rungs of a ladder. He also made fret backs and square backs. The legs of the Chinese and Gothic styles as used by Chippendale, were in keeping with the design of the upper parts of the chairs. Although many authorities attribute the claw-and-ball foot as a characteristic of Chippendale leg terminals, Chippen-

dale himself does not show any in his "Director." Clouston (English Furniture) says on this subject: "It will be seen by the illustrations given of Early Chippendale style that considerable use was made, among other things, of the claw-and-ball foot, it is therefore all the more remarkable that in the 'Director', though there are two instances of an animal's paw (seemingly a leopard's) with part of a sphere underneath, the dragon's claw holding a pearl entirely disappears, and with it, to a very great extent, the adaptation of animals to design." Oliver Brackett (Thomas Chippendale) makes a similar statement: "It will be noticed that certain well known models and decorative motifs of the period were not figured, (in the Director) and were avoided probably because they were already almost old-fashioned, for Chippendale made novelty one of the main features of his policy. Thus the claw-and-ball foot on chairs is not found." Also an extract from Burgess (Antique Furniture): "The claw-and-ball foot became a lion's paw, and lions' heads and paws were introduced into the more decorative arms and legs of the chairs he then made."

The legs were, in the beginning of the period, cabriole and later straight, terminating in scroll, slipper, paw, leaf and other designs:

Chippendale also made the "love seats" or "Darby and Joan" seats oftentimes known as bar-backed sofas. The French term "confidante" was frequently applied to the smaller of these settees.

The dining tables consisted of two center pieces with wide flaps on either side and two semi-circular end pieces, all four being joined by brass clips. The larger pieces stood on four cabriole legs and the semi-circular ones on two legs. Chippendale's card tables received much of his artistic attention and many beautiful examples are yet in existence.

He also made side-boards, tables, bookcases and bureaus, mirror frames, pierglasses and the tripod tables.

**Decorative Details:** Chippendale's earlier furniture retained many of the same decorative characteristics which are found in all Queen Anne and Early Georgian furniture. Later on, however, particularly after the appearance of the "Director" his furniture was decorated with more individual embellishment. Because Chippendale chose his motifs and designs to meet the desires and tastes of his buyers there often appeared on one piece of furniture three influences—Gothic, French and Chinese, the decora-

tions being skilfully correlated to meet the most exacting taste. Lions' paws and heads, carved ovals in panels of doors, acorns and roses, scrolls, strapwork, fretwork, shells, acanthus leaves, C-scrolls, Chinese pagodas, Gothic arches and tracery and dolphins are some of the many decorative motifs used by this master craftsman, and they were employed in various and interesting expressions.

The Gothic influence is particularly distinguishable in the use of the trefoil, quatrefoil arches, and various geometrical formations. From France he borrowed Rococo of Louis XV. The English inspiration can be found mostly on cupboards, settees, bureaux, secretaries and dressing tables; the French on bedsteads, and Chinese or Gothic, on tables. Chairs were designed in any and all of these styles. Upholstery was of subdued tapestries and velvets and red morocco leather. Railings around tables, as well as pie-crust tables were made in great numbers by Chippendale. These railings were often decorated in Chinese fret-work.

**Woods:** Chiefly mahogany.

**Specialties:** As listed by Burgess (Antique Furniture), Chippendale made basin stands, beds and couches, bedsteads, bookcases, brackets, cabinets, candle stands, chairs, chimney pieces, china cases, china shelves, clock cases, desks, dressing tables, fire screens, frets, girandoles, lanterns, organ cases, pierglasses, shaving tables, sofas, tea-kettle stands, terms for busts, toilets and writing tables.

**Modern Adaptations:** There is probably no furniture of period, historic or style significance that is more adaptable for use in a cultured modern home than that having the influence of Chippendale art. It is safe to say that no style has been more universally popular in America in all the varied uses of furniture form than that in review. Chippendale's artistry has always held a charm for American usage of furniture and he is probably the most studied creator among the many who seek and try to understand good furniture. Likewise, has the name been much abused through carelessness and ignorance and frequently to create an impression of furniture knowledge.

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*Thomas Chippendale.* Oliver Brckett.

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*English Decoration and Furniture of the Later Eighteenth Century.* Margaret Jourdain.

## CHAPTER XXVI

### THE ADAM STYLE

(The Adelphi)

**Place:** England.

**Time:** Robert Adam, born 1728, died 1792; James Adam, born 1758, died 1794.

**Sources of Inspiration:** The excavations at Pompeii and Herculaneum during the time of the Adam brothers brought about a revival of interest in the classic arts. Robert Adam was appointed, in the year 1762, architect to King George III and was more responsible for the style now known as "Adam" than was his brother, James. Being architects and furnishing the interiors of the homes they builded, their furniture naturally took on an architectural style. The hand of the architect is perceptible in the use of the ovals, tapering columns, hexagons and octagons. The Adam style was a direct departure from the fanciful Rococo which had been prevalent on the continent and in England for some previous years.

Many contemporary furniture cabinetmakers and designers also followed the Adam style, indicating, therefore, that the time for change had come and the public was more interested in simple, elegant and graceful furniture than in heavily ornamented pieces. Socially the Adam brothers stood high in England, their father before them being a Scotch architect of reputation. Robert was educated at the University of Edinburgh and there formed many valuable friendships which proved of assistance to him when he established his own business. He traveled extensively and applied the knowledge he acquired on these travels to the beautifying of furniture and the interiors and exteriors of buildings. Robert Adam published three volumes of "Works in Architecture", one of which was

dedicated to King George III. The Adam brothers seldom executed the designs they created but had many craftsmen working for them who are numbered among the outstanding furniture workers of the period.

**Government and Conditions of the Times:** Same as during the period of Chippendale with steadily increasing national and individual wealth and influence. England gradually became a world power and the kingdom as well as the colonies shared in the consequent economic progress.

**Architecture:** Architectural in appearance. Finely proportioned with marked attention paid to classical ornamentation.

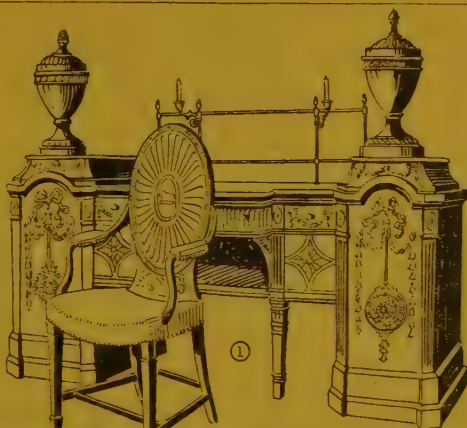
**Lines:** Classical with straight lines.

**General Appearance:** Quoting Costmo Monkhouse, Esther Singleton in her volume "French and English Furniture" says: "It was their custom (Adam brothers') to design furniture in character with their apartments, and their works of this kind are still highly prized. Among them may be specially mentioned their sideboards, with elegant urn-shaped knife-boxes, but they also designed bookcases and commodes, brackets and pedestals, clock-cases and candelabra, mirror frames and console tables of singular and original merit, adapting classical forms to modern uses with a success unrivalled by any other designer of furniture in England."

Robert Adam took furniture as he found it, changing the lines only to conform with his own classical interpretation as to what style should be. He found that the legs of chairs, tables, sideboards, etc., used by Chippendale, did not correspond with his decoration so he changed the legs. His designs became more ornamental as time went on and later we find he used inlays and color schemes together with a little gilding which were entirely absent from his earlier creations.

**Structural Details:** Chair legs of this style were round or square, often fluted and tapering downward. Splats were used on the backs of chairs, which were square in form. Often griffins were placed between the splat and the seat. Adam brothers are known to have used the "shield shape" chair back before it was adopted by Hepplewhite. It was usually of solid character.

Robert Adam borrowed freely from French design both in structure and ornament, in fact created "French Furniture" after the style of Louis XV. Cupboards and sideboards became of general use during this period, perhaps,

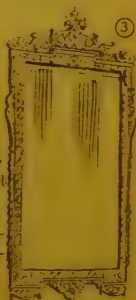


① Carved mahogany pedestal sideboard and oval wheel back master's chair designed by Robert Adam. These pieces embody many important Adam features such as the knife urn, husk fluted leg, side pedestals with wine cooler and brass rail

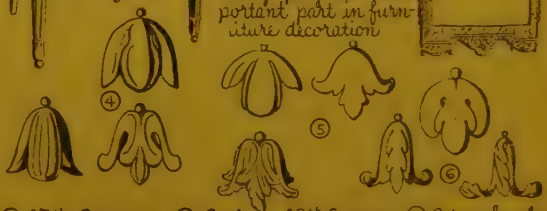


② Lyre back chair in the style of Adam. Note borrowed Roman influence in use of lyre and strings and in the structure of the chair.

③ Carved gilt framed mirror by Robert Adam



④ Husks have always played an important part in furniture decoration



④ 17<sup>th</sup> Century ⑤ Early 18<sup>th</sup> Century ⑥ Adam husks

Adam Style



because Adam designed furniture for large and roomy homes. He also paid attention to the utility of his pieces, adding pedestals, knife drawers, wine coolers and other accessories to such cabinet pieces. Satinwood was used as a veneer causing this furniture to be called "satinwood furniture." The console table can almost be called an Adam invention.

Side tables had "swelled fronts" and sideboards were often made with six legs. Brass rails extended around the top at the back of these sideboards and pedestal stands often were placed at the sides, producing what we might call an "ensemble." Tables also had a number of legs and the day beds had as many as eight, frequently mounted with rosettes carved in flat relief. Classical figures formed the supports of the roll back arms of chairs.

**Decorative Details:** Foley in "The Book of Decorative Furniture" says: "The Brothers Adam, largely inspired by Apalatro and Etruscan work, used almost all the classic moulded and banded ornament. Rams' heads, lions' heads and claws, which had for a few years been disused, goats' heads, with claw terminals (not invariably of the same animal's paws), together with flutings, the vitruvian scroll, the Greek key and honeysuckle, the centaur, griffin, and winged sphinx, oval or circular paterae and other late Roman symbols and chimera, formed with the husk a sufficiently extensive repertoire of ornamental details. Their use of brass mounts accustomed the English eye to the hard and harsh brass work of English Empire furniture of the early Nineteenth century. The metal mounters in England, it must be confessed, have at no time equalled the *ciseleurs* of France \* \* \*. In their mouldings the Brothers Adam at times diverged from the Grecian forms, usually to emphasize the hollow or cavetto at the expense of the round or ovolo line; whilst the enrichment of the moulding is a decorative feature of the style secondary in importance only to the husked swag."

Constance Simon states: "Plaques on which classical subjects were depicted by well-known decorative artists of the day were frequently used for the ornamentation of Adam furniture. Figure subjects were also inlaid and so delicately executed that at a short distance they appear to be paintings. Satinwood was introduced into England from the East Indies about this period and added a new note of color to houses where mahogany or gilded furniture had so long reigned supreme. At first the new wood was mainly used for inlaying purposes. Adam is supposed



to have employed Capitsoldi as well as other Italian and French metal workers for the making of gilt-bronze mountings. Occasionally the work was fine and delicate, but as a general rule metal ornaments on English furniture were not equal either in color, design or execution to those of Gouthiere and Caffieri in France."

The classical acanthus leaf was used by the Adam brothers only affecting the *rainceaux* style. This term expressed the "winding and twisting of the stalk or stem of the acanthus plant, flowing round in many graceful turnings." Angelica Kauffman painted much of the Adam furniture.

**Woods:** Spanish Cuban mahogany, satinwood, sycamore or harewood, kingwood, rosewood, pear, amboyna and other woods.

**Specialties:** Furniture fitting all rooms of the house, excepting the kitchen and bathroom, with particular attention paid to the development of small pieces as well as sideboards, cupboards, consoles, etc.

**Modern Adaptations:** Dining and bedroom furniture are executed in this style in both walnut and mahogany. Adam furniture demands today, as it did in the time it was created, a harmonious background and decoration.

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*English Furniture Designers of the Eighteenth Century.* Constance Simon.

## CHAPTER XXVII

### HEPPLEWHITE STYLE

**Place:** England.

**Time:** Born, (Date Unknown). Died, 1786.

**Sources of Inspiration:** Little is known of the private life of George Hepplewhite, before his name became renowned in England as a cabinetmaker of marked ability. In fact,

the information regarding his earlier years is so meager that we do not even know when he was born, although Cripplegate is given as his birthplace. He worked with many of the contemporary furniture designers of the day and borrowed freely of their ideas and creations. He makes no excuse for doing this, stating merely that in his furniture he designed and exhibited "such fashions as were necessary to answer the end proposed and convey a just idea of English taste in furniture for houses."

Thomas Shearer worked with Hepplewhite to considerable extent and contributed plates and designs to his book, "The Cabinet-Maker and Upholsterer's Guide", which was published two years after Hepplewhite's death. Mrs. Alice Hepplewhite, his widow, continued the work of her husband under the firm name of "A. Hepplewhite & Co." and used many of the designs he had created.

It is difficult to fix any date on which the Hepplewhite design began to influence British furniture making, but it may approximately be fixed at sometime during the 1760's. His style terminated in England about 1805.

**Government and Conditions of the Times:** George III was on the throne of England during the time Hepplewhite was supplying English homes with furniture of his creation. This period is particularly memorable for the great industrial and literary activity of the country. Several great events took place during the 60 years this monarch was on the throne, among which were: Spanish war of 1762-63; Wilkes controversy, 1762-82; the passage of the American Stamp Act, 1765; the publication of the Junius letters, 1769-72; the American Revolution, 1775-83; the Fox and North Coalition, 1783; the French Revolution, 1789; and the Irish Rebellion, 1798. In 1810, King George had a recurrent attack of insanity which left him incurably demented and in 1811 the Prince of Wales became Regent.

**Architecture:** Graceful and classical. Slender.

**Lines:** Straight and a usage of graceful curves.

**General Appearance:** Burgess in "Antique Furniture" gives the following general description of Hepplewhite furniture: "Hepplewhite does not appear to have had any great love for the massive and grand. He preferred smaller and more delicate objects, and tried to reduce the size of chairs and settees and other articles of furniture without impairing their usefulness or lessening their beauty. Most of the ornaments George Hepplewhite used were well adapted to the chairs of lessened calibre, and also to



① Mahogany cylinder secretarie-table (secretary-) of the Hepplewhite school. Dated about 1785. Cescinsky calls attention to French inception noticeable in this piece, also to the character of the marquetry which is representative of Hepplewhite usage.



② This chair referred to by Cescinsky as "serpentine-top, shield-back, central-splat" and is regarded as one of the earliest productions of the Hepplewhite school.



③ From Plate 5 in  
Hepplewhite's "Guide". The back combines  
three distinct motifs: shield, lyre and urn.

④ Applewhite details of caps, bases, pilasters and free ornament.



the small and tasteful articles of furniture which he provided for the dainty drawing rooms and boudoirs of his day. In describing his small models—and, indeed, Hepplewhite's work generally—chairs seem to come quite naturally into the greatest prominence, for it is his designs of chair-backs which present such striking characteristics, and show his chief development of the style he was formulating. It was in making chairs that he struck out on new lines. The shield became one of the chief attractions of Hepplewhite chair-backs. Sometimes it was inverted, in others it became a demi-shield, nicknamed the 'camel back', from its so-called hump in the center of the design. Sometimes the camel back is independent of the shield, being separately supported. Now and then we notice remains of Chippendale's school in the Cupid bow-top. Some of Hepplewhite's chairs based on Chippendale's designs are carved in relief, the graceful backs which he evolved making them especially suitable for low relief decoration. Many of the pierced are interlaced with ribbon; others have beautiful festoons, and here and there classical vases of the Adam school are introduced. The Prince of Wales' ostrich plumes tied with ribbons was a favourite departure, and Sheraton was successful in introducing this design. He completely altered the legs of his chairs, making them straight or tapering, often exquisitely reeded; sometimes so-called thimble toes form the finish to the delicate legs, and later turned legs and arm posts are seen on chairs and settees, especially those made after 1735. Hepplewhite made chairs for many purposes, some of his hall chairs with oval shields and classic urns being exceedingly attractive \* \* \*. As a rule, Hepplewhite's chairs are a little longer in the legs than those of Chippendale. Indeed, some appear to be much too high for the low backs, which look rather dwarfed in consequence."

**Structural Details:** The general structure of Hepplewhite furniture was light. In fact, some of the chairs looked so fragile that one hesitated to sit solidly upon them or lean comfortably against the backs. However, regardless of the fragile appearance, the furniture constructed by Hepplewhite was strong and durable.

"Hepplewhite did very little for the evolution of the sideboard," says Clouston (*English Furniture*) "in fact, like Chippendale, he retarded it; of the six designs given (in the Guide) four are simply sideboard-tables, being without drawers and lacking even the back rail brought in by Adam many years before. The two which might

be called sideboards, are precisely similar in construction, having a long shallow drawer in the center, at each side of which are two narrower drawers which do not reach half way to the ground. This is the more remarkable as Shearer—who was at all events friendly with the firm—was designing, in 1788 and very possibly before, sideboards of the construction afterwards universally adopted. Hepplewhite's sideboard-tables are much more beautiful and impressive articles than his sideboards, though one or two of them may be thought to err on the side of over-ornamentation."

Foley (*The Book of Decorative Furniture*, Vol. II) says, "The curved enriched pediments and cornices of the Hepplewhite period represent a distinct advance upon preceding work.

"Characteristic, too, of the style are the cornice friezes, having rows of pointed arches running throughout, and terminating with a small drop, suggested possibly by a pattern of Chippendale's.

"Very typical bases of the Hepplewhite-Shearer style are the small bombe and other moulded feet, of which Chippendale also was fond, and that in which the inner curves of the feet are prolonged and gently merged by a connecting shaped bottom rail."

The arms of chairs were usually short and curved. The spade foot is a definite characteristic of the Hepplewhite school. The hollowed out bracket-plinth, or "French foot" was frequently used on cabinet work. The scrolled pediment, often referred to as the "Tuscan" form was used on the tops of bookcases, china-cabinets, etc. Hepplewhite also made the pedestal and urn.

**Decorative Details:** Mechanical aids and labor-saving tools were being introduced into the woodworking trade at the time of Hepplewhite's popularity in England. Whatever decoration Hepplewhite used on the furniture he created was dainty and elegant. In some of the designs there were beautiful urns and conventional foliage. Small medallions were fashioned in the splats of chairs and the Prince of Wales' feathers and wheat-ears were often used in many of the designs. Leaf scrolls, chains of husks, eagles, ostrich feathers and flowing drapery, were other motifs common with this style.

Hepplewhite enlisted the painters who had added so much to the furniture of the Adelphi to decorate his furniture with dainty flowers and landscapes. The colorings of some of the elaborate pieces are often distinctly out of

harmony with that of the wood, but the texture of the painted ground was both muddy and coarse in comparison with that of the satinwood, upon which the painting was placed. Hepplewhite made much use of veneers and used satinwood, mahogany and other fine woods in his pattern-making. Horsehair stuffing was used for upholstery with coverings of silks, satins and other fine fabrics.

**Woods:** Mahogany, satinwood, birch, maple, sycamore, amboyna, and tulip.

**Specialties:** Chairs, tables, sideboard-tables, bookcases, china cabinets, bedroom furniture, settees, windowseats, and small pieces.

**Modern Adaptations:** Hepplewhite design adapts itself very well to modern use. Hepplewhite made mostly small furniture, consequently in our crowded living quarters, it fits with more grace and ease than perhaps does the furniture of any other period.

#### BOOKS FOR REFERENCE

*The Cabinet-Maker and Upholsterer's Guide.* A. Hepplewhite & Co.

*Universal Encyclopedia and Atlas.* D. Applegate & Co.

*The Book of Decorative Furniture, Vol. II.* Edwin Foley.

*Antique Furniture.* Frederick W. Burgess.

*English Furniture of the Eighteenth Century, Vol. III.* Herbert Cescinsky.

*English Furniture.* R. S. Clouston.

*Creators of Decorative Styles.* Walter Alden Dyer.

## CHAPTER XXVIII

### THE SHERATON STYLE

**Place:** England.

**Time:** Born, 1751; Died, 1806.

**Sources of Inspiration:** Thomas Sheraton was not an inspired artist as were the other master craftsmen of the Late Georgian period in England. He was poor, which may account for his almost malicious attack on his successful contemporaries. He was a self-educated preacher of the gospel, which perhaps may have given him a somewhat impractical outlook on things. Herbert Cescinsky says: "He was unfortunate; with his nature, had he started at the topmost rung of the commercial ladder, he would, doubt-

less, have remained there; but for an age of pandering, of dallying in the ante-chambers of the wealthy, seeking patronage and meeting only with the gibes of lacqueys and underlings, Sheraton was distinctly ill-fitted. The world, then as now, disliked the poor man of many parts; it was dangerous to encourage him. A wealthy patron to foster the cabinetmaker and to find that he has assisted a pamphleteer, a seditious man, unawares! A poor man may be excellent at one thing; he cannot be even passable master of some half dozen! And so poor Sheraton pined—or more probably reviled—in neglect. He had his victory, however, but alas, it was a posthumous one."

Sheraton published "The Cabinet Maker and Upholsterer's Drawing Book" in 1790. He obtained about 717 subscribers to the book, appealing to men in many walks in life, although 90 per cent of them were cabinetmakers. His book was a disappointment to many who had subscribed for it, because he evidently was more anxious to exhibit his ability as a teacher than to create and launch new styles in furniture. His preface occupied 119 pages and was almost entirely devoted to expressing his vemon against other cabinetmakers and designers. Although he received many of his ideas for his furniture designs from the style of Robert Adam he does not include the name of Robert Adam in his resume of furniture writers.

Unlike other furniture designers of the period, Sheraton was not a "master cabinetmaker." He maintained no shop in which to do his work, and it is doubtful if he ever executed any piece accredited to him.

Little is known of the personal life of Thomas Sheraton. He was born at Stockton-on-Tees about 1751 and presumably came to London at some early period in his life, although many writers do not fix the date of his arrival there until about 1790, a year before the publication of his book. Foley, however, thinks Sheraton's entry into London at so late date is "the extreme improbability, if not impossibility \* \* \* that Sheraton, a poor man always without means, to purchase the expensive publications of Chippendale, the Brothers Adam, and others, could neither have gained at Stockton or during a few months residence in London the intimate knowledge he displays in his book published 1791-94 of the work of his London brethren."

Before he became a furniture designer he was a writer on theological subjects, and a Baptist preacher. He describes himself as a mechanic "who never received the advantage of a collegial or academic education." He often



mixes up his theological beliefs with his descriptions of furniture, giving the reader and student an idea that he was not wholly an artist nor wholly a preacher, but a little of each.

Altogether, Sheraton published four books: "The Cabinet-Maker and Upholsterer's Drawing-Book", (1791); "Designs for Furniture", (Date in doubt); "The Cabinet Dictionary," (1803), and "The Cabinet-Maker, Upholsterer and General Artist's Encyclopedia", (1804-1807). (Some writers however, tell us that Sheraton reached only the "C's" in this last book when death overtook him.) Sheraton died in poverty in 1806, leaving his family in desperate circumstances.

**Government and Conditions of the Times:** Same as during the time of Hepplewhite. England was under the rule of George III.

**Architecture:** Classical and refined.

**Lines:** Delicate, with the use of subtle curves and chaste, straight lines.

**General Appearance:** The time in which Sheraton created his furniture designs covers the two periods Louis XVI and Empire in France. Esther Singleton in "French and English Furniture" has this to say regarding Sheraton furniture: "Sheraton had his own tastes and his own ideas, and his books are full of his individual fancies and instructions. He was a great admirer of carving \* \* \* and this explains the many graceful designs that he gives for carved splats and bannisters of chairs. He was also fond of inlaid and painted furniture, and greatly liked the new fashion of inlaying with brass, especially for black woods. Satinwood, too, \* \* \* he also admired and thought tulip-wood and zebra-wood, beautiful for cross-banding." She continues: "Sheraton's drawing-room furniture was of white and gold, of satinwood, painted and Japanned, or of rose-wood. The coverings for the drawing-room chairs were silk or satin, the designs being stripes or the oval medallion. In 1803, he advocates cane."

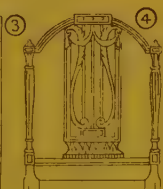
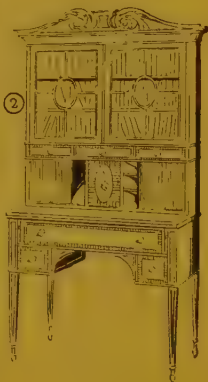
James Thomson in the May 1915 issue of "The Craftsman" tells us "In contemplating Sheraton ornament we are constantly reminded of the Adam Brothers and the French designers of the school of Louis XVI. Sheraton borrowed extensively the ornamental features that accorded with his style, but always imposed upon it his own individuality, thus rendering it to the casual observer a thing





① A sideboard in the accepted Sheraton style. Note the elegance of the lines and perfect architectural symmetry in design and ornament.

② A Sheraton bookcase desk, better known to modern times as secretary. Note distinct effort toward the practical usefulness characteristic of Sheraton furniture.



③ and ④ as suggested by Foley, are typical Sheraton chair backs.



Adam detail



Sheraton detail



Hepplewhite detail

⑤ Comparison of similar details in the work of Adam, Sheraton, and Hepplewhite.

original to himself. His work was formal, conventional, not such as to attract the ordinary eye. He showed less originality than Hepplewhite whose motif, as we find it, was his own. Many Sheraton sideboards are based upon the creations of Thomas Shearer who, in 1781 published a book of designs."

**Structural Details:** Sheraton's furniture, although light and feminine in appearance, was structurally strong and durable. He used the oval-shaped back, the lyre, lattice work and slender urns on the backs of the chairs. Sheraton employed both the square and turned legs. Lozenge-shaped panels are often found on his cupboards and sideboards. Writing desks, which he designed in a goodly number, were delicate and well proportioned and were adapted particularly to feminine use.

Burgess says: "Sheraton was in favour of a lower back than most of Chippendale's patterns, and an outstanding feature of his chairs was the bottom rail of the back which ran horizontally between the uprights supporting the central splat. To these were added side-rails at right angles. It has always been admitted that the principle upon which these chairs were made was sound constructionally, the rail knitting the frame-work together and keeping the back rigid. Sheraton's legs were, of course, lighter than Chippendale's; they varied in form, being sometimes square or round, tapering to a fine point, or at others they were hexangular or octagonal. The two latter forms admitted the use of choice inlays, and favored the style Sheraton was cultivating. They also admitted some carving, which formed a pleasing variant in the decoration. Three well-known varieties are obtainable, the square pattern known in the trade as the 'Marlborough', the 'thimble toe' or 'spade' and another variety in which a band of ebony or dark wood encircled the finely-tapered extremities."

On Sheraton's sideboards are found useful drawers, cellarets and other receptacles. Some of these receptacles were lined with tin to keep plates warm and sometimes to hold warm water. The table top was often enriched with a brass rail, and many of the mahogany sideboards were decorated with lions' heads and ring handles. The legs of sideboards were either square or fluted. The forms varied, some of them being straight, others concave, convex or serpentine.

**Decorative Details:** All of Sheraton's decoration and ornamentation was delicate, in keeping with the general

appearance of the furniture he designed. He was a lover of fanciful woods and used them profusely. When carving was used it was small and finely executed. Many of his pieces are painted and decorated with floral wreaths and other fanciful motifs. He also used fans, scrolls and graceful festoons. Silk draperies were used for bed curtains, and many of his chairs were upholstered in silk. For decorative ornament in metal work he used beautifully chased handles and brass rails.

When Sheraton attempted to create an English Empire furniture he failed miserably and the results were ugly and scarcely recognizable as coming from the mind of the same man who designed his earlier furniture.

**Woods:** Mahogany, satinwood, rosewood, zebrawood, harewood, amboyna, tulipwood, kingwood and several other rare species.

**Specialties:** Chairs, desks, sideboards, sewing tables, beds, wardrobes, corner cupboards, settees, sofas, lounges, etc.

**Modern Adaptations:** The Sheraton style is continuously followed by modern designers. It needs but few changes and because of its light and graceful appearance fits well into modern American homes.

## BOOKS FOR REFERENCE

*Sheraton's own books as referred to above. (Limited to museums, libraries, and private collections).*

*French and English Furniture. Esther Singleton.*

*English Furniture of the Eighteenth Century. Herbert Cescinsky.*

*Antique Furniture. Frederick W. Burgess.*

*English Furniture. R. S. Clouston.*

*The Book of Decorative Furniture, Vol. II. Edwin Foley.*

*English Furniture Designers of the Eighteenth Century. Constance Simon.*

*Chippendale, Sheraton and Hepplewhite Furniture Designs. J. M. Bell.*

*The Sheraton Period; Post Chippendale Designers. A. E. Reveirs-Hopkins.*

*The Thirty-Five Styles in Furniture. Timms and Webb.*

## CHAPTER XXIX

OTHER FURNITURE DESIGNERS AND CRAFTSMEN OF THE  
LATE GEORGIAN PERIOD

**Place:** England.

**Time:** Late Eighteenth and early Nineteenth centuries.

**Sources of Inspiration:** This period may be called a "Golden Age" for furniture in England. Besides the four great masters (Chippendale, Adam, Hepplewhite and Sheraton) there were several others who contributed materially to furniture taste, thought and construction of the day. Among the outstanding were:

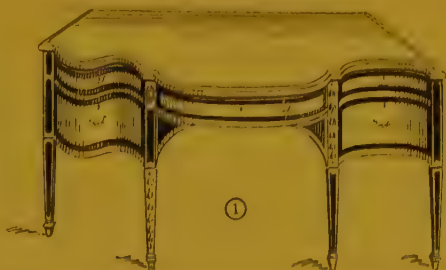
Robert Manwaring,  
Thomas Shearer,  
William Ince and Thomas Mayhew,  
Robert and Richard Gillow,  
Mathias Lock (and Copeland).

Among other artists and craftsmen who designed furniture should be mentioned Thomas Johnson, Sir William Chambers, Thomas Seddon, George Smith, Thomas Hope, J. Crunden, James Gibbs, William Kent, Issaac Ware, etc. Many of them worked with the master cabinetmakers and others had shops of their own. All of them, no doubt, felt the wave of furniture interest and beauty that was sweeping England during this time, and took advantage of that interest.

**Government and Conditions of the Times:** England was under the rule of King George III.

**Architecture:** Robert Manwaring: Heavier than most of the furniture made at this time, but in many characteristics resembling that created by Chippendale. Thomas Shearer: Dainty and simple, sometimes confused with Hepplewhite and Sheraton furniture. W. Ince and T. Mayhew: Same as Chippendale, but not executed with the fine technique characteristic of the latter. Their chairs were awkward. Robert and Richard Gillow: Influenced by Adam style, therefore closely resembling furniture by the Adam brothers. Mathias Lock and Copeland: Flamboyant during the beginning, later, almost exact copies of the Adam style.

**Lines:** The lines of the furniture of each of the above masters are almost exact duplicates of the master cabinetmakers whom they copied or for whom they worked. Only in the case of Mathias Lock is there a distinct departure,



① Sideboard reproduced from Shearer's own design. The delicacy of this piece shows Hepplewhite association.

② Design for candle stand from "A New Book of Ornaments" by Lock and Copeland. Dated by Macquoid at 1768.



③ and ④ Two "Parlour" chairs from the "Universal System" by Ince and Mayhew. Dated by Macquoid 1762-63

⑤ "Gothic" gates reproduced from "The Chair Maker's Guide" by Robert Manwaring and others.



from the general use of straight lines and limited use of curved lines. Lock made his early furniture with sweeping curves.

**General Appearance, Including Structural and Decorative Details:** For a clearer understanding of the furniture made by these craftsmen we are directly quoting writers who are most familiar with it. R. S. Clouston, undoubtedly, is the most quoted and accepted authority on the furniture of the lesser masters. Therefore the following quotations are taken principally from his book, "English Furniture and Furniture Makers of the Eighteenth Century", published by Hurst and Blackett, Ltd., London.

Robert Manwaring: "It is quite impossible to say what Manwaring might have done in his moments of madness, but such plates as the ribbon back chairs are so vastly inferior and so poor structurally that, I think Manwaring may be fairly exonerated from any blame concerning them. The 'fluttering ribbon' to use Mr. Heaton's phrase, is not only fluttering, but waving wildly, whereas, in the single design of the kind which is undoubtedly by him it is treated in a more reserved and possible manner. \* \* \* In parts it (Manwaring's furniture) catches the new spirit of simplicity brought in by Adam, but only to graft it on the old. The chairback remains practically the same in its lines, with here and there, \* \* \* a heavier use of ornament than in the 'Directoire' but the legs, as a rule are simplified, a very favorable shape being the square, \* \* \* either with or without carved decoration."

Thomas Shearer: "No contemporary designer, not even Sheraton at his best, can be held to have surpassed him (Shearer) in the combination of daintiness and simplicity: but he was far behind both Sheraton and Hepplewhite in the application of the more florid form of ornament. What he possibly may have considered his chef d'oeuvre is a sideboard, the first of its kind (so far as dated designs go) to be really a sideboard and not a sideboard-table with drawers introduced. It may or may not have been the first attempt to combine a sideboard-table and the pedestals and vases which went with it into one article, but it is certainly first as regards date of publication. \* \* \* In bookcases Shearer is very strong. His eye for proportion is indisputable, and it is only his occasionally uncertain use of inlay and ornament which would prevent us placing him first in this department among later designers. \* \* \* Whether Shearer influenced Hepplewhite or Hepplewhite, Shearer is a question to which we are not likely to find a

definite answer; yet as a considerable portion of Sheraton's style was founded on Shearer's lines, the presumption is that if a man of such very decided personality was affected, Hepplewhite was no less indebted to this great but practically forgotten designer."

William Ince and Thomas Mayhew: "If Ince's claim to high rank among the designers of the Eighteenth century rested solely on the drawings he gives of chairs, exceptional merit could barely be claimed for him. \* \* \* Both Chippendale and Ince and Mayhew have serpentine fronted commodes differing from those of Shearer and Hepplewhite solely in ornamentation, whilst in some other heavy articles, such as bookcases, there is still greater similarity. \* \* \* He (Ince) was, unfortunately, led by the reception given to Johnson's foolishly flamboyant illustration into mistaking a transient phase for a new era, and the greater part of the additions were doomed to extinction before they had the chance of appearing as anything but engravings. \* \* \* The 'Chinese taste' is strongly in evidence in many of the plates (in the "Universal System of Household Furniture"). In this style Ince left the chairs to his partner, while he confined himself to such objects as china shelves and cases, remarkable for their simplicity of treatment, which cannot be said for his partner's work in these articles."

Robert and Richard Gillow: "Neither he (Robert) nor his son Richard, whom he took into partnership in 1757 ever posed as a great designer; in fact, from this point of view, they greatly undervalued their creations: but they prided themselves, and with justice, on the finish and excellence of their workmanship. \* \* \* It is not known whether Richard Gillow had any special architectural training but it is probable that he had; for from the time of his joining the firm they had a considerable business as architects. \* \* \* He was also somewhat of an inventive genius. The first billiard table emanated from him, and 1800 he invented and patented the telescopic dining table, one of the most useful of furniture inventions universally used. \* \* \* In chairs there are marked differences from what, so far as the evidence goes, was the use and wont of the time, not only in the very distinctive treatment of the backs, but in that of the arms. Sheraton gives no arm of the kind; and though Hepplewhite in one of his cabrioles, makes use of the paterae on the terminals, it is not only without other carving, but is distinctly different in shape. It was, however, continually used by the Gillows, and may therefore be considered as originating with them."



**Mathias Lock and Copeland:** "It is evident that he (Lock) has carefully studied not only Adam's style but his water colour methods. \* \* \* The drawings reproduced (pier frames, tables, etc.) are indistinguishable from Adam's treatment, even down to the plain green tint washed over the stuffed parts of the chair, except that he has adhered to the sudden perspective of his youth, and by representing the chair as a single on one side and an arm on the other, gives that lop-sided effect that is common in furniture plates of the time, but does not occur in anything but Adam.

"Though some of Lock's small mirrors would explain better—regarding simplicity—feeling pervaded the more pretentious and complicated of his later designs."

**Woods:** Mahogany and all rare and fancy woods used in the Eighteenth century for veneers.

**Specialties:** Manwaring: chairs; Thomas Shearer: sideboards and desks; William Ince and Thomas Mayhew: tables, china closets, etc.; Robert and Richard Gillow: chairs, consoles, etc.; Mathias Lock and Copeland: chairs, sideboards, etc.

**Modern Adaptations:** Similar to the designs created by the four master cabinetmakers of England the furniture of the contemporary craftsmen have added greatly to our own furniture design and embellishment. There is much in the furniture created by these men which is now being used to advantage in the American home.

## BOOKS FOR REFERENCE

*English Furniture.* R. S. Clouston.

*English Furniture Designers of the Eighteenth Century.* Constance Simon.

*The Thirty-Five Styles in Furniture.* Timms and Webb.

*A History of English Furniture.* Percy Macquoid.

## CHAPTER XXX

### LOUIS XVI PERIOD

(Baroque)

**Place:** France.

**Time:** 1774-1793.

**Sources of Inspiration:** The people of France, including even the dissolute nobility, soon tired of the excessive frills and fancies of the Rococo style of furniture as interpreted by the court and surroundings of Louis XV



and returned to a more orderly and dignified school of interior furnishings. The influence of the court adventuress was at an end, for whatever may be said of the political mistakes of this ill-fated king, he was essentially a home and family-loving man, who preferred to isolate himself in the gardens of Versailles, play with his child wife, Marie Antoinette, and putter with his locks and masonry rather than meet the stern responsibilities of a monarch. Louis XVI furniture, therefore, is a return to the classic, lacking, however, the severe dignity of that of Louis XIV. It has frequently been described as "drab", due no doubt to the kaleidoscopic change from the luxuriance of the preceding period. This notwithstanding, it continued in vogue until the time of Napoleon, when it gradually gave way to the Directoire style, which was a forerunner of the so-called Empire style.

**Government and Conditions of the Times:** End of hereditary monarchy and beginning of revolution. The condition of France during most of the reign of Louis XVI was a continued aggravation of the difficulties which began with Louis XIV. The preachings of Rousseau, Voltaire, and a host of writers and philosophers, augmented by a continued extravagance of state officials, had taken root in the souls of the oppressed populace. A period of public lawlessness presaged an inevitable uprising, during which both Louis XVI and his queen, Marie Antoinette, were tried and beheaded. Then followed a revolution, which, while having little to do with furniture, marked the end of one of its most glorious epochs and from which much good was to be derived for all time to come.

**Architecture:** Small in structure, simple and graceful in appearance. A refined taste in ornamentation.

**Lines:** Mostly straight and rectangular with a restrained use of long slender curves.

**General Appearance:** This style is often known as the "Antique". The excavations at Pompeii which were begun in 1748, and those at Herculaneum which were begun originally in 1719, were at a much later date being actively pursued and brought to the attention of the French artists and craftsmen, as it did to that of the Adam brothers in England, a renewed interest in the decorative arts of the Romans. The date of the transformation from the Rocaille style to the classical Louis XVI style is generally fixed at about 1763.

The shape of the furniture changed completely and is described by Elisa Maillard in "Old French Furniture and Its Surroundings", as follows: "The supports were formed of columns and fluted pilasters, either simple or cabled (these last have on the lower part a baguette, or moulding, which is sometimes smooth and sometimes covered with overlapping scales). They were headed by Ionic or Corinthian capitals. Caryatides too, often formed the supports, but balusters and brackets in the shape of spiral scrolls were perhaps the most frequent of all."

Many of the chimerical animals were brought back into favor. There was a presence of such motifs as griffins, chimeras, sphinx and sirens.

**Structural Details:** No particular seats of balance were attempted either in chairs or larger pieces of furniture, but everything rested on straight lines. Chairs, sofas, commodes, desks, tables and other pieces stood on slender tapering legs which were free from underbracings. Chair backs were either square or medallion-shaped, although it took an expert craftsman to produce a good example of the medallion-shaped back.

The curves used on Louis XV furniture are conspicuously absent on Louis XVI pieces. The sofas were longer and were supported by a number of straight, fluted legs. Beds no longer had the curved outlines of the previous style and the wood was almost always visible. The posts frequently became independent columns which were always fluted and sometimes cabled. A pineapple, a plume of feathers or some similar ornament usually crowned these posts. Ovolo mouldings or beadings carried out still further the classical theme of the piece. The head boards of the beds were often upholstered in the same material as used on the curtains.

**Decorative Details:** Carving to represent twisted cord or rope was an ever present motif of decoration. Acanthus leaves, bows and rosettes, staffs entwined with laurel, oval plaques, mahogany veneers in fancy patterns all make the ornamentation of Louis XVI furniture interesting. Gold lacquer furniture with gilt ornament also appears during this period. Often painted china plaques graced the panels of furniture used by the ladies.

There is frequently found a thin line of threaded beadings or husks or shorter flutings between the long flutings on the legs of chairs, tables, settees, sofas, etc. The flutes were sometimes lined with brass or tipped with metal beading as in the case of ormolu mounted pieces of the



① French sideboard typical of Louis XVI style, dated by Schmitz at between 1780 and 1790. In both structure and ornament this piece shows the departure from the rococo, yet retaining a lightness and charm. Note the return to classical thought.

② Console table of exquisite proportion and decoration, from the period of Louis XVI.

Sketches showing Greco-Roman influence in Louis XVI furniture



Louis XVI furniture was frequently, if not largely, influenced by Roman, Greek and Egyptian design and architecture. By turning to the plates illustrating ancient design and similarly those showing ancient furniture, the student will note the resemblance.

vase-like terminals used in Pompeiian furniture. At the top was carved a small wreath or a row of beading or finished with a torch-like effect. The torch effect seemed to be favored.

Bound arrows formed the corners of many bureaus and commodes. The woods, when not gilded or enameled were left in their original colors and many fantastic and beautiful designs were executed by the use of veneers. Lyres, urns, wreaths, flaming torches and other classical motifs were the favored themes for the carver's knife.

**Woods:** Mahogany, amboyna, tulip, rosewood, walnut and satinwood.

**Specialties:** Fire screens, console tables, tables, looking glass and picture frames, buffets, clocks, dressers, chairs, settees, writing tables, jardiniers, knitting tables, work tables, chiffoniers, breakfast tables, chocolate tables, candle stands, lamps, etc.

**Modern Adaptations:** Correctly designed, Louis XVI furniture is a graceful contribution to any room. Bedroom and dining-room furniture, occasional pieces for living rooms and drawing rooms are particularly charming in this style.

#### BOOKS FOR REFERENCE

*Old French Furniture and Its Surroundings.* Elisa Mailard.

*French and English Furniture.* Esther Singleton.

*Historical Art Furniture.* Georg Hirth.

*Time, Taste and Furniture.* John Gloag.

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## CHAPTER XXXI

### FRENCH EMPIRE PERIOD

**Place:** France.

**Time:** Directore, 1795-1799; Napoleon, First Consul, 1799-1804; Napoleon, First Empire, 1804-1815.

**Sources of Inspiration:** Whenever, in the history of

mankind, there have been absolute dictators, the arts and comforts of society have quickly followed their whims. Never has this been more aptly demonstrated than in the appearance of French Empire furniture. The French, being by nature and sentiment intensely artistic, would have been the last to embrace a style so at variance with the classic and decorative examples of the Renaissance as was the Empire style of furniture and decoration. But it was Napoleon's wish that France should be another Greece in the arts and another Rome in conquest. Hence, he turned to the classic forms as known to the Greek and Roman schools and made furniture of wood that should have been cut in stone. The result was something akin to the re-animation of a life long dead and gone. It did not fit into the times and had no place in the established order of things. Yet it took a somewhat firm root, traveled over the channel to England and later to the United States, where, in conjunction with a Colonial influence it found a definite place in the furniture arts.

**Government and Conditions of the Times:** Napoleon, in 1795, practically put an end to the French Revolution by sweeping the streets of Paris with grapeshot and placing himself in command of the city, thus beginning a career which has never been equalled by any other individual in semi-modern times. He became almost an absolute master of Europe and dictated its destinies either through France or alliances. He was successively first consul and emperor, reorganized the finances of the country, recodified its laws, revolutionized its methods of education, centralizing everything at Paris under state control; stripped the church of its power and placed it, also, under government regulation. In not more than fifteen years he built a new monarchy upon the ashes of the old with far more concentrated power than France had ever known under its dissolute Bourbon kings. Exiled, and returned to power, and forced back again to a banishment in which he eventually died, the figure of Napoleon is one which could not pass across the stage of history without exercising a most profound influence upon the lives and customs of many countries. Napoleon's influence upon furniture, however, was, as his influence upon everything else, in the nature of a command. Few were in accord with his views of art but fewer still dared to oppose them. Thus it happened that following close upon one of the most distinctive periods of furniture creation came another period of debasement which served merely as an

idea upon which a better and finer result was later achieved.

**Architecture:** Cubic and rectangular. A weak imitation of the ancient Greek, Roman and Egyptian arts.

**Lines:** Stiff and ungainly, executed in straight and angular forms with a limited use of curves.

**General Appearance:** The furniture of the Napoleonic times reflected the militarism of the ruler of France. The pieces were heavy and uncomfortable; the decorations mostly winged figures, sphinx heads and helmeted warriors, arranged like cameo medallions. The Greek style of architecture was borrowed freely in the designs of the chairs and tables. Altar pieces of ancient times were made to serve the purpose of a lady's sewing table. The tripod table appeared in almost every corner and recess.

**Structural Details:** The legs of chairs were straight, turned or slightly curved. Paw and claw feet, made of metal, were merely terminals for the legs of the chairs and tables. The beds were plain, for the most part, frequently without the canopy which was so much in evidence during the reigns of the Louis. Marble was used for the tops of buffets and chests. The stretcher does not appear in any Empire furniture of France. The legs of chairs often curved inwardly. Heavy columns bordered the sides of cabinets, a feature that was later adopted by American cabinetmakers.

**Decorative Details:** Almost all ornament appearing on French Empire furniture was made of metal. Gilding and painting were resorted to when metal could not be obtained. The sword, the shield and other war implements formed the chief motifs for decoration. Ancient motifs, such as the Egyptian sphinx, pineapple, lyre, burning torch, and Napoleon's initial were other forms of decoration. Metal pulls were placed on drawers and occasionally glass knobs were used. The upholstery was in rich fabrics, frequently leather in deep blues, browns, reds, greens and purple. Staining and varnish finished the appearance of artificiality that characterized the Empire furniture.

**Woods:** Chiefly fine mahogany and occasional use of rosewood and ebony.

**Specialties:** Cabinets, secretaries, tripod tables, sewing tables, chairs, armchairs, console tables, clocks, mirror frames, beds, couches, buffets.



① Empire furniture partook of Roman and Egyptian artistry in an even greater measure than did furniture of Louis XVI.

This bed is Egyptian in structure and shows Roman influence in decoration.

② Chair from the Empire period borrowed from the style of the Romans.

It is interesting to note that the Romans borrowed the same type of chair from the Greeks.



③ Lampadaire, serving much the same purpose as the modern floor or pedestal lamp. From the French Empire period. The ram's head and horns were among the first decorations appearing upon the altars of Egypt and Greece.

④ Section of decorative table from the Empire period. Date about 1800. The figures are Greco-Egyptian; scrolls, Pompeian.





**Modern Adaptations:** This style formed the basis for the design which prevailed in America at the time of Duncan Phyfe and was called Colonial Empire. French Empire has long ceased to be a practical style for furniture in our modern small homes and when used finds a place only in large and stately mansions and manors. With many of its shortcomings, there is a strange dignity about French Empire furniture with its imposing atmosphere that makes it particularly suitable to rooms of large dimensions, whether in private homes or public meeting places.

**The Directoire:** The furniture made during this period was controlled by the Jury of Arts and Manufactures at whose command many fine pieces of ancient France were destroyed. Makers of furniture, who had introduced the royal ornament on furniture and in fabrics, suddenly discarded them and substituted griffins, caryatides and classic ornament. Napoleon's expedition in Egypt, which took place at this time, influenced both the structure and decoration of the furniture of the Directoire. The sphinx came into use after Napoleon returned from Egypt, as did the torch of victory, bay leaves, honeysuckle and other classical motifs.

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## CHAPTER XXXII

### DUNCAN PHYFE STYLE

**Place:** United States of America.

**Time:** Born, 1768; Died, 1854.

**Sources of Inspiration:** Little is known of Duncan Phyfe before his family moved to New York City. It is probable that he learned his trade in Albany, because he was about 16 when the family settled in the metropolis. He was born in Scotland. As the family migrated to America when



Duncan Phyfe, who was the second oldest son, was at a tender age, it is not probable that he received any of his training abroad. He was born and grew up, however, when England was enjoying furniture of the finest type, produced by her great masters and their contemporaries.

Duncan Phyfe furniture may be broadly classed under three influences, and for the lack of any other term may be generally designated as Colonial:

1795-1818—The Adam-Sheraton influences. It was during this part of Phyfe's work that we find the finest examples produced.

1830-1847—Empire. The first part of this period Phyfe continues to design beautiful furniture. During the latter half, his creations show a decided decline in artistry.

1830-1840—Victorian. Duncan Phyfe, himself, designated this furniture as "butcher furniture." It was heavy, mostly made of rosewood, and lacked the beauty and grace of his early pieces.

Although Phyfe's work did not gain recognition until approximately 1795, as early as 1800 he was receiving encouragement and patronage from some of the wealthiest and best established families on the eastern coast. Members of the John Jacob Astor family used their influence with members of their own set to buy furniture from Phyfe and it was not long before he was the foremost designer in the country.

At first Phyfe was located at No. 35 Partition Street, and as his business expanded he acquired No. 34 and then No. 33. Later Partition Street was renamed Fulton Street.

Hepplewhite, Sheraton and Adam materially influenced the work of the American craftsman in the early part of his career, although in every piece of furniture he made there was a new interpretation in its creation. Thus while resembling the furniture of the English masters, it retains characteristics which can be easily detected as belonging to a cabinetmaker of independent thought and one not too closely associated with the Englishmen.

Duncan Phyfe died August 16, 1854 at the age of 86 years.

**Government and Conditions of the Times:** The United States, now an established and recognized nation in world concourse, was developing along all lines. During this age we produced James Fenimore Cooper, William Cullen Bryant, Washington Irving, Nathaniel Hawthorne and others who were writing poetry and prose around Amer-

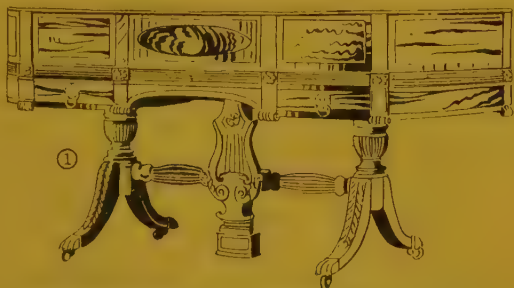
ican social and economic life. The Academy of Arts was established in February, 1802. Robert Fulton had perfected the steamboat and Morse the telegraph.

The government, though more or less speculative, was the government we enjoy today. The people were becoming accustomed to governing themselves. John Marshall was defining the constitution and our new freedom was taking a sound and permanent form. The West was being opened up and states were being added to the Union. Land was being divided and settled as far as the Mississippi and beyond. There was opportunity for all who would work with a purpose. The rude home of the settler was being remodeled and furnished with more interest in comfort and taste. More attention was paid to the cultural arts. Schools began to spring up and flourish and children had to learn to read and write. Emigration was on the increase. Settlements appeared here and there of foreign born who soon became imbued with the American spirit. Thus began the home, the social and political America and in this beginning furniture found a warm and hearty welcome.

**Architecture:** Low and slender.

**Lines:** Graceful and refined. Influenced by the English masters, French Rococo and Empire.

**General Appearance:** A kaleidoscopic review of Duncan Phyfe furniture is given by Charles Over Cornelius in "Furniture Masterpieces of Duncan Phyfe" and reads as follows: "The fashions of the day were too strong to be combated, and as the years went by Phyfe found it necessary to drift further and further away from the original distinction of style which had characterized his work. The earliest pieces, derived almost wholly from Hepplewhite and Sheraton, are worthy of a place beside any of their European contemporaries. The severe simplicity which was characteristic of much of it was not a sudden break from the simple but dignified furniture. Chippendale in origin, it was popular in the post-Revolutionary years of the Eighteenth century. The influences of France, very strong in New York, and noticeable in costumes as well, led him early to adopt many motives of Directoire and consulate origin, but he combined them skilfully with those of his earliest practice, still keeping the delicate scale and fine finish of the latter. As this French influence increased, the heavier forms of the French Empire came into vogue, and in response to the demands of his clients, by this time numerous, Phyfe was forced to enter into a style of work

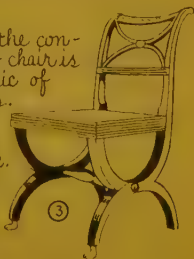


① Pianoforte designed by Duncan Phyfe. The case is veneered in finely figured wood and rests upon a trestle base with the lyre as the central motif. Dated by Cornelius at about 1820.



② Lyre back chair with the concave legs. This type of chair is particularly characteristic of Phyfe's earlier designs.

③ Chair showing the Empire influence. It was this style of furniture that Phyfe dubbed "butcher furniture".



④ Card table with crossed lyre pedestal. Phyfe made many tables in this style.

⑤ Chair slat designs employed by Phyfe.



⑥ Typical chair legs in the Phyfe style.



which was much inferior to that of his earlier days. Even his heavier work, with its use of gilt metal, is well made from a craftsman's point of view and possesses a certain character in spite of its over solidity. The still further change which came with the dark ages of black walnut led him into the labyrinth of bad taste from which there was no egress."

**Structural Details:** Because of the variety of influences affecting the furniture made by Duncan Phyfe, to describe his furniture in a technical way it is almost necessary to take it in sections. The legs of the tables, chairs, settees, etc., done in Sheraton style were straight, reeded and fluted. Chairs often had concavely curved legs and some tables were supported at each end with lyre-shaped bases. The backs of chairs had the lyre motif, X-shaped pieces, either straight or curved, and shaped bars between uprights. Again quoting Charles O. Cornelius: "The analysis of his proportion is difficult. Its general effect is that of an exquisite balance between vertical and horizontal structural members. In his design one sees a very strong sense of structural integrity and economy in construction. In legs of tables, chairs, and sofas, the supporting effect is frequently emphasized by reeding or carving which carries the eye in the proper supporting directions up and down. These vertical supports are reduced to the smallest dimensions commensurate with complete stability, showing that economy of material which is indicative of the most developed forms of structural art. The horizontal elements, heavier, of necessity, than the vertical, are proportioned to the whole height of the piece in much the same manner as are the entablatures of the classic orders of architecture. Thus in a small card or console table the skirting is shallow, its lightness emphasized by veneered borders or tiny bead moulding at the bottom, its whole depth happily proportioned to the total height of the piece. In a library or dressing table—two variations of the same problem—where it is necessary for utilitarian reasons to introduce one or more drawers which require a deepening of the skirt, the supports are either made heavier proportionately, or are coupled at the ends to suggest greater strength."

Duncan Phyfe is not known to have made any sideboards but his tables received much of his artistic ability. Quoting Walter A. Dyer in his article on Duncan Phyfe Furniture, appearing in the March, 1915, issue of "The House Beautiful": "His tables are equally distinguished in design and workmanship. He made several types of

dining-tables, both extension and sectional, with the lyre frequently appearing in the pedestals. The same motif appears often on his smaller tables, but their more noticeable characteristics is the avoidance of straight lines in both tops and legs. The leaves are nearly always slightly rounded, with sometimes the clover-leaf pattern at the corners. The pedestals are often either crossed lyres or finely carved pillars, to which are attached three or four legs, curving gracefully outward in the characteristic concave sweep. Phyfe certainly never copied this curve from his Georgian predecessors. He seldom if ever made a table with four vertical legs at the corners."

**Decorative Details:** The Pompeiian designs appealed to Phyfe as they did to the Adam brothers, and consequently we find a liberal usage of acanthus leaves, ovals, plumes, lyres, and the classical lines on the backs of his chairs, and settees.

"The decorative methods and motives of Phyfe's design form the second important element by which his work is distinguished. The methods of decoration include carving, turning, veneering, reeding and inlay. There is, too, a very occasional use of brass in his best work, although this is much more characteristic of his later periods. The carefully chosen woods which he used, either in solid planks or in veneers, were decorative elements in themselves." (Furniture Masterpieces of Duncan Phyfe.)

**Woods:** Mahogany.

**Specialties:** Chairs, both arm and side, dining tables, card tables, dressing tables, sewing cabinets, serving tables, cheval glasses, beds, washstands, etc.

**Modern Adaptations:** The furniture design of Duncan Phyfe is liberally used today, particularly in odd pieces, dining room suites and bedroom furniture. The lightness and daintiness of his earlier pieces are particularly adaptable to our homes and decorative schemes.

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## CHAPTER XXXIII

## COLONIAL AND COLONIAL EMPIRE PERIODS

**Place:** United States of America.

**Time:** 1795-1830.

**Sources of Inspiration:** By the time young America was enjoying Colonial and Colonial Empire furniture, the country was well established both politically and industrially. People then began to look to the home as a source of enjoyment and comfort. Thus with the advent of Duncan Phyfe and the stimulus he gave to furniture making in America, there was a consequent "awakening" among the cabinetmakers and woodworkers. Furniture was being made after that of the late Georgian masters of England and much of the furniture we find in America during this period is in many characteristics imitations of English furniture. We cannot blame the American cabinetmakers and designers for patterning after their former Mother Country, because in some respects she was still their leader. After the revolution and the resulting sympathies of the colonists with the French peoples, we find the use of French designs and decorations on American furniture. The Rococo was at its height in the early part of this period in France and in the latter part, the Empire. The American designers made of the Empire design, furniture that was destined to live a longer and more joy-giving life than that produced in France. It is with pride that we look upon the pieces made by our forefathers, in that their furniture was staunchly made and has withstood the strain of time and wear to the extent that most of it can be used in our homes today.

The advent of machinery in the latter part of this period, gave a new impetus to cabinetmakers; and many who maintained "shops" in the beginning were now launching "factories" on a small scale. Furniture made in America always retained an individual style based on American thought and interpretation and cannot be confused with that made abroad. Furniture was still being imported from the foreign countries, but people were more and more showing a tendency toward buying furniture of American make, which, in itself was an added impetus for furniture making in America.

**Government and Conditions of the Times:** Many important events took place in the United States during the time covered by these periods. The capital was moved from



①

① Outstanding example of Willard or Banjo clock dated by Lockwood about 1800. The American Eagle distinctly portrays the predominating national spirit.



②

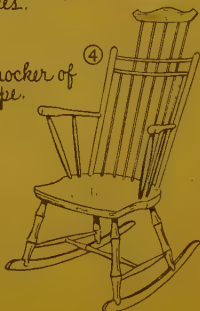
② Typical Colonial drop-leaf table in use toward the end of the Eighteenth century.

③ Chest of drawers showing the Colonial Empire influence, dated by Lockwood about 1820. American Cabinet makers were among the first to attach mirrors to cabinet pieces.

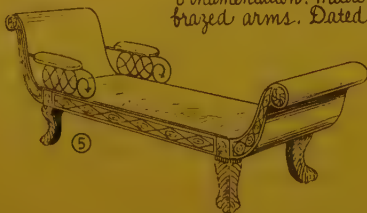


④ Colonial rocker of Windsor type.

④



⑤ Colonial Empire chaise-longue of delicate workmanship and fine ornamentation. Made of mahogany with brazed arms. Dated by Lockwood, 1790-1800



⑤



Philadelphia to Washington in June, 1800; the purchase of Louisiana was effected in April, 1803; the War of 1812 was waged; the burning of the Capitol and the President's mansion in 1814 by the British; the state of Ohio was admitted to the Union in 1803; in fact in 20 years so many changes had come about in the United States that it would be impossible to enumerate them here. S. E. Forman in his book "Our Republic, a History of the American People" gives the following resume of territorial expansion and general economic progress: "Thus by 1820 the frontier line has been pushed far out into the land beyond the Mississippi. As we follow this line in its receding movement toward the setting sun, how marvelous appear the changes which took place in the brief space of two decades! How different was the United States of 1820 from the United States of 1800! In 1800 the area of our country was less than a million square miles; in 1820 it was nearly two million. In 1800 our western boundary was the Mississippi river; in 1820 we had full title to possessions which extended to the eastern base of the Rocky Mountains, while our claims included territory bordering on the Pacific. In 1800 the population of the United States was five million; by 1820 it had doubled. West of the Alleghanies in 1800 there were barely half a million white people; in 1820 there were nearly eight times as many. In 1800, with the exception of New Orleans, there was not in all the West a single collection of houses that was anything more than a village; by 1820 Pittsburgh, Cincinnati, Louisville, Nashville and St. Louis had all risen to the rank of cities and were all flourishing centers of trade. And how great was the growth of the American Union during these years! In 1800 the Union consisted of sixteen states; in 1821 it contained twenty-four states, nine of which were west of the Alleghanies \* \* \*. The men of capital and enterprise come. The 'settler' is ready to sell out, and take advantage of the rise of property, push farther into the interior and become himself a man of capital and enterprise in turn. The small village rises to a spacious town or city; substantial edifices of brick, extensive fields, orchards, gardens, colleges and churches are seen. Broadcloths, silks, leghorns, crepes and all the refinements, luxuries, elegance, frivolities and fashions are in vogue. \* \* \* Frontier life fostered the spirit of democracy. In the wilderness there were no distinctions in rank or wealth, there was generated that feeling of equality which is the essence of democracy.



Every man was an individual who counted as one, but no man counted more than one. The frontiersman by every principle and implication of his being was a democrat; he believed that every man should have a vote and that the majority should rule. He therefore could be relied upon to do his part in making the world 'safe for democracy'. The frontier states were all organized as democracies. Ohio, Indiana and Illinois all provided in their constitutions for complete manhood suffrage in their first constitutions."

**Architecture:** Plain and simple in structure.

**Lines:** Generally straight; curved lines were used to add grace and balance.

**General Appearance:** Almost all types of furniture for household use were made during this period. Perhaps it is well here to mention the rocking chair which was an American invention. It began with crude rockers in the Early American days and at the time of the beginning of the Colonial period, as we know it, the rocker formed an important part of "parlor" furniture. The rocker was added to chairs of many styles, the upper part conforming to the period design.

Many examples of chests in the Sheraton and Empire styles were in use, particularly in low chests of drawers. The Empire pieces were often heavy and massive in construction, decorated with reeded columns, claw feet and large but attractive carving. Few mouldings were used. The Sheraton and Hepplewhite styles adapted themselves very well to the small dressing tables, sewing tables and other occasional pieces and were copied profusely. Mirrors were attached to the upper parts of chests of drawers mostly rectangular in shape.

Inlay became common and many beautiful results were achieved, after the Sheraton style. Bookcases were often made in the Chippendale style, sometimes so large that they completely covered one side of a room.

**Structural Details:** As a rule Colonial furniture is so closely patterned after the furniture of the Georgian period in England that it would be but a repetition to describe it here. It is noticeable, however, that neither in structure nor decoration did the craftsman of America go into the elaborateness characteristic of that abroad. Simplicity seemed to be the watchword of all artists. The broken pediment, for instance, was used profusely on the tops of secretaries and bookcases. This was the Georgian

motif, but it lost its scroll and sweep when it was transferred to American-made furniture. It was severe and architectural, but always in keeping with the balance of the piece. Only the simplest of turnings were used on chair and table legs and the use of stretchers is particularly marked. Slat backs, bannister backs, ladder backs, together with the Windsor spindle back, were in favor. Bedsteads were plain, usually with testers.

In the Colonial Empire the legs of chairs, tables and settees were usually straight. Sofas had rolled arms in different styles. "Center" tables rested on pedestals of considerable weight. Feet were turned in scrolls, lions' claws, bracket and other styles. Columns are often found in the Colonial Empire furniture pieces, suggesting the Greek influence.

**Decorative Details:** In the early part of this period little decoration was used. The figure in the wood formed a conspicuous part of the decoration of the piece. Pineapple finials are frequently found, together with some spindle carving.

In the Colonial Empire, however, there is more freedom expressed in furniture decoration. Metal mounts, which were beautiful in themselves, were used profusely. Heavy scrolls, the pineapple, carving, gilding, acanthus leaf motif, glass knobs and cornucopia, together with the beautiful figure of wood, formed the chief decorations.

**Woods:** Chiefly mahogany in the latter part, and oak, pine, the fruit woods, such as apple, pear and cherry; ash, hickory and gum during the earlier part of the period.

**Specialties:** Gate-leg tables, Windsor chairs, secretaries, bookcases, bedsteads, table desks, "grandfather clocks", tilt-top tables, butterfly tables, bureaus, dressing tables, sofas, pedestal tables, etc.

**Modern Adaptations:** There are few homes which have not some examples of the furniture of the Colonial or Colonial Empire period. It is perhaps, one of the most stable furniture styles of modern times. Not alone because of its simple beauty, but because of the many traditions which surround it. Many factories specialize in the production of Colonial furniture more particularly in bedroom and living room requirements.

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## CHAPTER XXXIV

### POST-COLONIAL STYLES\*

**Place:** United States of America.

**Time:** 1820-1910.

**Sources of Inspiration:** Although spool-turned furniture came in about the same time as Colonial Empire, we are including it in this designation because it has no fixed place nor fixed time of popularity in this country. Spool furniture will always enjoy favor as long as furniture is principally constructed with the help of machinery.

After the Civil War there was a decline in the manufacture of furniture, but as the country re-established its finances and industries, there was a general demand for new furniture—styles which were different from those used prior to the Emancipation Proclamation. Having the machine to contend with, the furniture designer did not feel as much at liberty to use his own creativeness as did the masters of the Eighteenth century. He constantly was required to think of manufacture in quantity and there were many intricate and beautiful designs and embellishments which did not adapt themselves to the machine.

Among the types or styles of furniture which alternately lived and died during this period with their approximate dates are:

1865-1880 American Victorian.

1879 Eastlake.

1892 Revival of Empire with Romanesque decorations.

1895 Mission.

1903 L'Art Nouveau.

1905 English Arts and Crafts.

1900-1910 Golden Oak period.

This furniture can best be described as the beginning of "commercially made furniture." Mission furniture undoubtedly gained more popularity and has enjoyed a longer

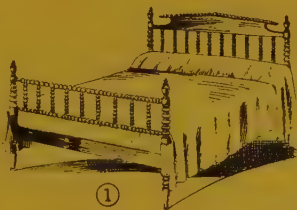
\* Acknowledgement is made for the obtaining of much of this material and accompanying illustrations to Mr. George F. Clingman of Chicago who has kept a faithful record of the changes in furniture styles during the past 50 years.

life than any of the others. America had a turn toward the simple lines and consequently Mission furniture was manufactured in great quantities and was principally made of oak. In fact, Mission furniture has not yet lost its favor, and we find many factories still making suites in this style and selling them in considerable numbers.

**Government and Conditions of the Times:** The story of the Civil War and the times leading up to it, are well known to the student and repetition of historic details have no place in this discussion. However, the student may be interested in the economic and political events, as they directly relate to furniture after the Civil War, when the furniture styles now in review received their impetus and gained favor.

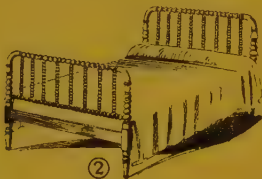
Quoting Woodrow Wilson in "A History of the American People" Vol. V, we find a splendid interpretation of the reconstruction progress that had obtained at the time of the Centennial Exposition in Philadelphia: "The country got visible proof of its extraordinary material progress at its Centennial Exposition in Philadelphia. The last year of General Grant's presidency was the centennial year of the independence of the United States, and the anniversary was celebrated by a great international industrial exposition at the city of Philadelphia, where the Congress had sat which took counsel for the young republic at its birth. All the greater commercial and industrial nations were represented in its exhibits. Foreign governments responded very promptly to the invitation to lend their aid in securing its success. \* \* \* The thronging crowds at Philadelphia, the gay and spacious buildings, the peaceable power of the world's workmen exhibited upon every hand spoke of good will and the brotherhood of nations, where there was no rivalry but the rivalry to serve and to enrich mankind.

"It was significant for America that objects of beauty marked everywhere among those exhibits the refinement and the ennobling art of the world. Throughout all the long hundred years in which they had been building a nation, Americans had shown themselves children of utility, not of art. Beauty, they had neglected. Everything they used showed only the plain, unstudied lines of practical serviceability. Grace was not in their thought, but efficiency. The very houses they built, whether for homes or for use in their business, showed how little thought they gave to the satisfaction of the eye. Their homes were in most part wood and the perishable material hardly jus-



① and ② Two typical examples of spoon-turned beds. This type of furniture has been in use for approximately 150 years.

③ A Romanesque Empire cabinet piece made of antique oak, designed by John Brower of Grand Rapids. It appeared in 1892.



④ A Romanesque Empire bed, dated by Clingman 1893. The student will note the similarity of shape to that popular in France during the Empire period.



⑤ L'Art Nouveau cabinet which appeared in 1903. This is a typical example of the L'Art Nouveau design and expresses its distinctive features.

⑥ A settee in the style of the English Arts and Crafts furniture. This piece appeared in 1905 and was made of fumed oak.



tified costly ornament or elaborate design; and yet the men of the Colonial time, keeping still some of the taste of an older world, had given even their simple frame dwellings a certain grace and dignity of line, and here and there a detail, about some doorway or the columns of a stately porch, which rewarded the eye. Builders of the later time had forgotten the elder canons of taste and built without artistic perception of form even when they built elaborately and at great cost. The same plainness, the same hard lines of mere serviceability were to be seen in almost everything the country made. The things to be seen at Philadelphia, gathered from all the world, awakened it to a new sense of form and beauty. Foreign governments had generously sent priceless works of painting and sculpture over sea to give distinction to the galleries of the exhibition. Private citizens and local museums also had freely loaned their chief art treasures. Everywhere there was some touch of beauty, some suggested grace and form. \* \* \* Men knew afterwards that that had been the dawn of an artistic renaissance in America which was to put her architects and artists alongside the modern masters of beauty and redeem the life of her people from its ugly severity."

**General Appearance, Including Structural and Decorative Details:** Spool furniture had one and the same structural and decorative theme. It was composed of a series of spool-like turnings which formed the legs of beds (the principal piece in this style) as well as the head and foot boards. American Victorian furniture was patterned after that of England. It was heavy with a generous use of straight lines, with curved lines only in the decorations. Much of this furniture was made of black walnut. Tables, washstands, dresser tops and pedestals were covered with marble. Beds had high head and foot boards. Dressers often reached near the ceiling in height with long beveled edged mirrors. Victorian furniture in America as well as that of abroad could scarcely fit into our modern rooms. In fact one Victorian bed would very nearly fill a moderate sized living room in some of our bungalow and apartment homes.

The Eastlake style, which came in about 1879, was created and named after Sir Charles Lock Eastlake of England. Eastlake was a believer in creating new forms from old ideas. His style was after the Medieval with a feeling of Gothic and many beautiful pieces were made. Like other styles created by great designers, Eastlake was made by

PLATE II

⑦ A Victorian chair which is typical of the American interpretation of the Victorian style of England. The chair has an upholstered seat and back, the back being of the buttoned type.

⑧ A Mission chair which appeared about 1900. This chair is taken from an original that was sent from California in 1895 and represented the first piece of Mission furniture sold on the market.



⑨ Eastlake bookcase which was made about 1882.

It was made of cherry and executed by hand.





many factories and a large number of pieces called Eastlake had no real right to the name. The furniture was made of cherry, for the most part, and was often decorated with panels ornately embellished. The lines were straight, the feet were mostly block being a continuation of the side.

The attempted revival of French Empire about 1892 brought forth some very excellent pieces of craftsmanship. These pieces in structure resembled the French Empire, only leaned toward a Romanesque ornamentation. The mounts were gold instead of brass. The Romanesque design received its renewed impetus from homes designed by the noted Boston architect, Mr. Richardson.

Mission furniture came as a development of furniture pieces found in southern California, with its massive square frames and coarse rush bottom seats. This style included tables, desks, chairs and other useful pieces. It was an unconventional style for unconventional people. Mission furniture was invariably made of oak. It had no decoration. The legs of the chairs and tables were uncompromisingly straight and the backs were formed of two of three unadorned slats. The legs were tied together with stretchers, and the feet were simply a continuation of the leg, ending abruptly. Later pieces had wooden seats. Rockers are frequently made in this style.

L'Art Nouveau was a composite style embracing the English, French and Japanese methods of ornamentation and construction. It was a departure from all the then existing styles and is pure in the interpretation of artistic motifs. The designer took as his decorative themes, the growing plant, the root, the stalk and the crisp leaves. The flowers were invariably inlaid in wood mosaic, each shade and coloring being of a different natural wood. L'Art Nouveau suffered like many of the later furniture designs in the transferring of the design into inferior makes of furniture and lived a short, but when correctly executed, beautiful life.

English Arts and Craft furniture came into America about 1905. It was an adaptation of furniture of the same type manufactured in England. It was severely plain, somewhat resembling our Mission style, although it often carried the decorations of copper handles, hinges and other ornaments which were hand-wrought. The furniture was made of fumed oak.

The Golden Oak furniture was as the name suggests, furniture made of oak, given a finish which made it bright



and sunny. The pieces made in this style were principally for use in the dining room and bedroom. No particular decorative theme was added to the heaviness, but rather it depended entirely for ornamentation upon the color of the wood. The dining-room suites had round tables, supported by a single heavy pedestal, the buffets were large and often had a long mirror at the top over which was placed a shelf-like cornice. The chairs were straight and stiff with central splats and plain wood seats.

**Woods:** All common woods known to the furniture trade.

**Modern Adaptations:** The styles of these periods are too modern to re-make to fit our needs. Many pieces are still in our homes, serving useful and ornamental purposes.

## BOOKS FOR REFERENCE

*The Furniture Styles.* J. Newton Nind and Gustav Stickley.

## CHAPTER XXXV

### MODERNISTIC STYLE

**Place:** France, England and America.

**Time:** Twentieth Century.

**General Comment:** The period dating from the end of the Civil War in the United States has seen very little development in original furniture styles or periods throughout the world. Of late years, when more interest has been aroused by the increasing knowledge of the public regarding furniture, there have been many attempts to create a style distinctive of the times. Furniture has always been adapted to the type of dwelling in which it was placed. If the ceilings were high, the furniture structure became correspondingly tall; on the other hand, if ceilings were low, furniture was flattened out, so that proportionately it fitted the rooms in which it was placed. We can therefore say, that the architecture of the home influenced the design of furniture to a marked extent through all its long and sometimes inspiring history. So it is not surprising that today, with our multitude of furniture designers, craftsmen, and manufacturing methods, that a desire is manifest to create a style distinctive of the age.

In 1925, at the International Exposition of Modern Decorative and Industrial Arts, held in Paris, was beheld,

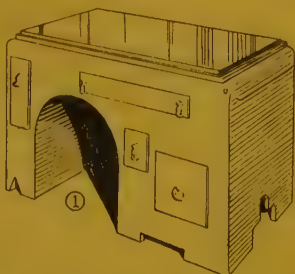
perhaps, for the first time, furniture that could be called "modernistic". It is not within the rights of the compilers of this book to express whether this style is pleasing or otherwise; we can but describe it and let the reader judge. We are encouraged to know, however, that the designers of our times are trying to create concepts in furniture which will represent our civilization, our hopes and ideals.

**General Description:** It would be quite impossible to minutely describe the furniture style which is in the process of creation today. Because of the popularity the "futuristic" art has enjoyed, the furniture of the modernistic school has in some cases been patterned after it. There seems to be a general desire among its creators to use structural and decorative lines which will express this school. In some cases the chairs and tables are box-like with a cubistic form of line, leaving the impression to the layman that the piece is out of proportion. The chair legs are often tied together with stretchers sometimes forming completely solid sides reaching to the floor. Octagonal backs on some of the lighter chairs with square spindles connecting the arms with the seats are also found. There is no appearance of flutes, reeding or other decorative motifs found in furniture of other periods. Severity of line seems to be the principle desire of attainment among the designers of furniture of this period. However, the furniture depends almost entirely for its attraction on the various and brilliant color schemes employed. To the average American, accustomed as he is, to the more conservative type of furniture, upholstery, draperies, etc., the style is a trifle startling. There seems also a trend toward varying the architectural style in single groups, that is, a living room suite may have no two chairs alike, nor any two pieces of the same architectural or decorative plan. This eloquently illustrates the restlessness of the present period, not only in its political and moral philosophy, but in its reaching through the arts for startling and revolutionary results. That it has its place, there is no doubt, otherwise it would not have received the attention of artists of three countries. We must recognize it as a beginning of a style, characteristic of the Twentieth century, with hopes that it will develop into a period particularly representing our civilization.

**Woods:** All types known to the modern cabinet trade.

**Specialties:** Chairs, tables, consoles, beds, desks, secretaries, lounges, day-beds, dining room suites, sideboards, breakfast room suites, etc.

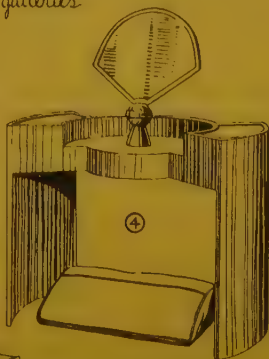
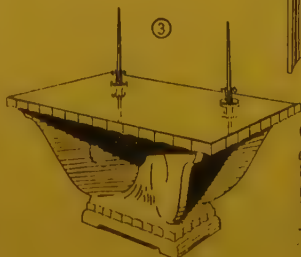
① Desk in the Modernistic style. It is lacquered with silver drawer ends. The student will notice the individuality of the piece and the departure from old established styles.



② Upholstered chair in silver leaf finish. The arms are one continuous piece forming the front supports. Executed by the Frankl galleries.



③ Mirror top table which suggests the 'cubistic' style of art. Executed by the Frankl galleries.



④ Table by Eugene Printz after the modernistic school. Exhibited at the Salon des Artistes Decorateurs, Paris, 1926. The figured wood forms the principal decorative theme.

## CHAPTER XXXVI

## FAR EASTERN FURNITURE

**Place:** China and Japan.

**Type of Civilization and Sources of Inspiration:** Before any attempt is made to discuss Far Eastern furniture, particularly that of China and Japan, it should be remembered that we are dealing with homes and products distinctly different from our own. Not only do the Asiatic people differ from those of Europe and America in physical characteristics, such as stature, color of skin and in racial traits, but they differ in the operation of the mind. Ages of religious and traditional habits, far removed from our concepts, have established among these peoples arts and crafts almost foreign to our understanding.

China is, perhaps, the oldest country in the world as we rate countries with respect to their civilization. Situated on and around the oldest known land, as we geologically estimate the physical age of the earth, it is altogether likely that the first societies of human beings were formed on its ancient plateaux and table lands, from whence they drifted into the valleys of the south and west and on into continental Europe. There are very evident traces of Chinese influence in many of the traits and products of the early peoples of Egypt and Mesopotamia. In fact, many scholars are of the belief that all early civilizations received their incentive from the Far East and that the present difference in customs, traditions, arts and institutions is due to adaptations of our own and to the inevitable changes which are a part of the development of a progressive society.

The same may be said for Japan, although in the last two centuries this country has been drawn closer to the type of civilization we call our own.

The lack of understanding between these peoples and our own have not, however, prevented them from teaching us a great deal about the wood-working arts nor from making valuable contributions to both the artistic and constructional beauty of furniture. The so-called Rococo style is deeply laden with Chinese influence. Chippendale drew heavily upon Chinese principles of art. Chinese rugs, finish, wood and reed products, lacquer and ornament are found in many homes of culture and refinement.

Nature supplies, almost wholly, the nucleus of Chinese and Japanese art. Discussing the Japanese as a nation in the annual report of the Smithsonian institute for 1895, Gardiner G. Hubbard ably summarizes Japanese art as the

accumulated knowledge of centuries, rather than the grafting of one style upon another. "Within its (Japanese) confined scope," says Mr. Hubbard, "it was in advance of the art of other nations when the country was opened to foreigners. For her art as well as her literature, Japan is undoubtedly indebted to China and Korea, as among the most skilful workmen of the famous Satsuma faience are the descendants of Korean artists. After the introduction of art, its development was greatly promoted through the influence of the feudal system. The daimios required swords and armor, and their retainers were employed in their fabrication. Whatever time or labor was required to produce the finest and most beautiful article was freely given, and thus skilful artists were trained first in the fabrication of swords, and then in works of art. There was great rivalry among the daimios and these artists to produce the most beautiful works, and this rivalry was further stimulated by the custom of sending beautiful presents from one lord to another.

"Pictorial art has never attained any great importance, but the decorative and industrial art of Japan is original, and excites the admiration of the world. The children early use the brush in making the many lines and curves required to form the complicated Chinese characters, and thus acquire that accuracy of eye and skill of hand necessary for artistic work. They have no knowledge of the architecture or art of Egypt, Babylon, and Greece, on which that of Europe and America is founded. They know little of either sculpture or music in their highest development, and their delineations of the human form, although showing skill, are only bizarre and grotesque; but they have the closest and most sympathetic appreciation of nature in her most delicate and beautiful aspects, and their exquisite representations of the varied forms of animal, insect, and plant life make their work the wonder and envy of our Western artists."

**Architecture:** Low and flat.

**Lines:** Straight in structure and fancifully curved in decoration.

**General Appearance, Including Structural and Decorative Details:** So little has been written about the furniture of the Far Eastern countries, for the reason that so little furniture existed in these countries, that information is meager. One of the most comprehensive reviews of Japanese and Chinese furniture is contained in "The

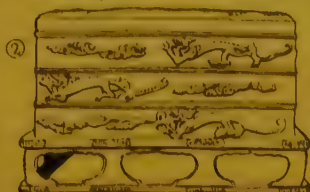
Encyclopedia of Furniture", by Dr. Herman Schmitz (Robert McBride & Co., New York, 1926); Dr. Schmitz says in part: "Chinese furniture only developed, at least so far as can be discovered, during the Sixteenth and Seventeenth centuries in the Ming period. The period which introduced coloured, painted Chinese porcelain to the Dutch and English in the Seventeenth century is the first to give a clear idea of Chinese furniture. One cannot find such a variety of decorative furniture in China as in Central Europe. The simple mode of life and the prevalence of wooden architecture limited the possible development of furniture. \* \* \* In the Seventeenth century the tables, stools and vase stands are characterized by low tables. The straight legs are bent inwards at the bottom; and between the legs and underframe, bent, crossed and trellis-like supports are often to be found. \* \* \* These supports and lattice-work are peculiar expression of that lack of structural ideas, in our sense of the term, from which Chinese cabinet-makers suffer. And it is an important fact that this Chinese manner of constructing furniture was a weighty factor in the transition of the severe Baroque to the more lively Rococo in European decorative furniture. The rare Chinese cupboards with two and four doors and chest-like boxes of the Sixteenth century and later, are simply and plainly made with straight frames and large surfaces, uninterrupted by constructional features. We should remember here the important fact that all Chinese furniture is lacquered. This lacquer painting is the chief beauty and strongest features of Chinese and Japanese furniture. The smooth cupboards and boxes are painted chiefly with landscapes and horsemen in gold on a black ground. Sometimes the brilliant effect is heightened by mother-of-pearl inlay. About 1700, flowers, large birds and rocks were added especially in high relief work. The flat carved colored lacquer work on Coromandel wood, dating from the end of the Seventeenth century is a special type of its own. Chinese lacquer furniture was in its most flourishing condition during the Ming and Kanghsi period (Sixteenth and Seventeenth centuries).

"Japanese furniture owes its character solely to lacquer work. The scanty receptacles, chiefly coffin-like pieces for arms and writing boxes, are alone distinguished by their excellent lacquer work; for the rest, they lack plastic forms or profiles. Japanese lacquer may be traced back to the earliest times of Japanese culture, that is, to the Eighth and Tenth centuries. But the furniture and boxes of this



①

① The imperial throne of Ch'ien-lung (1736-1795). This piece shows the most perfect Chinese workmanship both as to lacquer and intricate ornamentation



②

② Japanese document chest of the seventeenth-century. Note the balanced placement of the decoration

④ Chinese chair of the 18th century. The splat is particularly ornately carved

③ Japanese table of ancient times. This is delicately decorated with the floral motif and is built characteristically low

③



④



early period are almost exclusively in the temples as well as in the celebrated national sanctuary, Nara, and in the imperial palaces. The majority of Japanese lacquer furniture and utensils that have been preserved, date, like those of China, from recent centuries; chiefly from the Seventeenth and Eighteenth. Japanese lacquer is characterized by inlay with gold specks, the so-called aventurine work, and by unsurpassing polish. The motifs in the early periods are severely conventionalized weapons, rosettes and foliage ornament; later landscapes, peonies and birds are scattered over the surface, all more delicate in design and finer in relief and lacquer than Chinese lacquer furniture."

**Woods:** Teakwood, satinwood and bamboo.

**Specialties:** Low stools, low tables, chests and boxes.

**Modern Adaptations:** Occasional pieces of ornament such as stands, footstools, vase tables, lamps, screens, chests, boxes, jewel cabinets, coffee and tea tables, etc., are often found in ensembles of modern and period furniture.

—Marta K. Sironen.

#### BOOKS FOR REFERENCE

*Smithsonian Report.* 1895.

*Encyclopedia of Furniture.* Dr. Herman Schmitz.

*Chinese Furniture.* Herbert Cescinsky.

*Things Japanese.* Basil Hall Chamberlain.



PART IV

*Furniture Woods*

*By Arthur Koehler*



# Furniture Woods

## CHAPTER I

### FACTS ABOUT WOOD

#### Why Wood Is Used Extensively for Furniture

It is of more than passing interest to note that throughout the many centuries that man has used furniture of one kind or another, whether as a crude attempt to add to his creative comforts or in a desire to express his artistic temperament, wood has been the chief material of construction. Other materials such as leather, reeds, stone, and metal have been used from time to time but only to a minor extent.

This almost universal use of wood for furniture is due to two fundamental reasons: One is that wood has been a material readily available in nearly all places where man took up his abode; and the other is that wood has certain properties which make it especially suitable for furniture making. These properties are:

Wood is easily cut into desirable sizes and can be smoothly surfaced.

It is easily fastened together with nails, screws, dowels, and glue.

It is not excessively heavy and therefore furniture made from it can readily be transported.

It is ornamental in itself, or can easily be given attractive finishes.

It is a poor conductor of heat and, therefore, does not feel very cold or very hot when of a temperature differing considerably from the body temperature.

It is comparatively noiseless under impact.

It is easily repaired.

If it had not been for some of these properties of wood and that the wood was available, it is very doubtful that anything like the massive oak carvings of the middle ages, or the artistic designs in mahogany by Chippendale, Sheraton, and other masters, or our modern veneered walnut patterns could have been executed. No other material of equal utility yields itself so readily to the hand of the artisan.

## **The Structure of Wood**

The average person distinguishes the different kinds of wood by the general appearance, or "grain", of the longitudinal surfaces. Wood technologists usually look for specific characteristics on a smoothly cut cross section of the wood, because it shows better than does the longitudinal surface the arrangement of the pores and other features of the cellular structure, which make one wood different from another. But, since general appearances cannot be accurately described and since the cross section, or end surface, of wood in furniture is usually not exposed, an attempt will here be made to point out specific differences between the longitudinal surfaces of the kinds of wood commonly used for furniture.

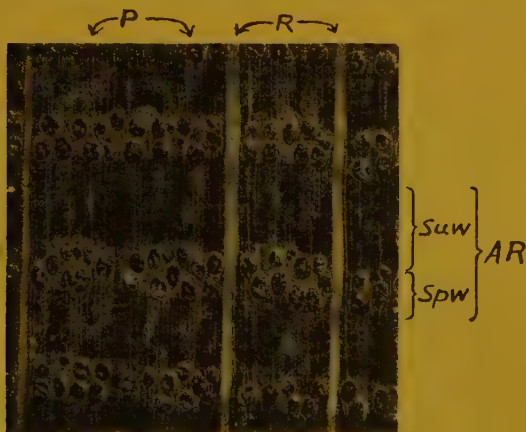
### **Structure of Wood Most Reliable for Its Identification**

As a rule, the structure of the wood offers the most reliable means of identification, and hence, the following descriptions are based largely on structural features. In addition, for each species described, the natural color of the heartwood and the relative weight and hardness are also given, although in a finished piece of furniture the color often is changed by stains and the weight of any individual part cannot be determined.

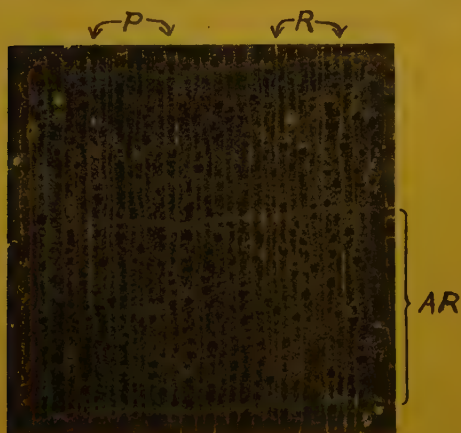
It is assumed that the wood to be identified is either in its natural state or covered with a transparent finish through which the structural features of the wood can be seen.

### **Variations in Structure of Wood**

It will first be necessary, therefore, to say something about some of the variations in the structure that occur in wood. In the first place, a tree grows in diameter by the addition of new layers of wood immediately under the bark each year. In trees growing in temperate climates, and to some extent in certain tropical trees, growth ceases during the unfavorable seasons of the year and, in so doing, produces a well-defined demarcation for each year's growth. These yearly increments of wood are known as annual rings.



(A) White Oak.  
(Ring porous)



(B) Mahogany.  
(Diffuse porous)

Fig. 1. Cross sections of wood magnified  $7\frac{1}{2}$  diameters.  
Spw, springwood; suw, summer wood; ar, annual ring;  
P, pores; R, rays.

## Pores in Hardwoods

In hardwoods, and that term includes all native commercial woods from trees with broad leaves (as contrasted with softwoods which includes all trees with needle or scale-like leaves), there are vertical ducts for conducting sap up and down the tree interspersed among the fibers and other elements which make up the wood. These ducts can be seen with the naked eye on cross sections of some woods, where they appear as round holes, as in oak and ash, for example. (See Fig. 1). On longitudinal surfaces of such woods they appear as fine grooves. These can be seen in Figs. 16, 18, and 21. Usually the grooves appear darker in furniture because they purposely have been filled with a dark filler so as to make the figure which they produce more conspicuous. In other woods, red gum and maple, for example, the pores are not visible without a magnifying glass. Here, then, is a distinct difference between two groups of hardwoods. (Softwoods, which do not have specialized pores for conducting sap, are not discussed in this Manual because they are not used a great deal for furniture.)

In some hardwoods with visible pores there is a row, or several rows, of large pores at the beginning of each annual ring, or layer of growth, giving the wood a "ring-porous" or stratified appearance. This is also shown in Fig. 1A. Oak, ash, chestnut, and elm belong to this group.

In walnut and mahogany the pores are also plainly visible on end and longitudinal surfaces but they are more nearly uniform in size throughout the annual rings giving the wood a "diffuse-porous" appearance. (See Fig. 1B). In birch the pores are smaller than in mahogany, but under good illumination they are visible as fine grooves on longitudinal surfaces, especially if a dark filler has been applied.

## Rays

Another structural feature of value in the identification of wood are the rays, which are strips of cells running across the grain in a radial direction in the tree trunk. Fig. 1A shows the rays on the cross section of oak, and Figs. 16B, 25B, and other illustrations show them on quarter-sawed surfaces of other species of wood. The rays are very numerous in all species but vary greatly in size as between species. In oak the rays are larger by

far than in any other common native wood, the larger ones being from 1 to 4 inches in height. The "silver grain," or "flakes," in quartered oak are the rays. In all other woods they are much smaller.

### Differences Between Quarter-Sawed and Plain-Sawed Lumber

Since wood has annual rings and rays it can be cut in two distinct ways: (1) parallel with the rays, that is, from the circumference through the center of a log, pro-

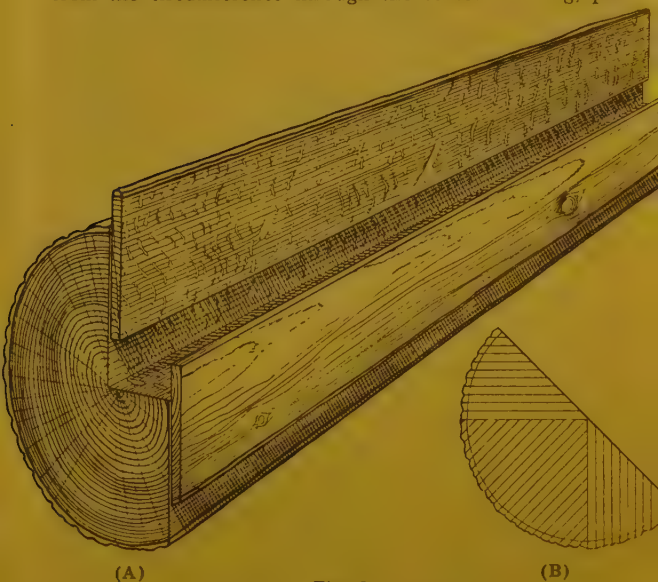


Fig. 2.

- (A) Position of quarter sawed (upper) and plain sawed (right) boards in a log.
- (B) Diagram of method of cutting one-half of a log into quarter-sawed boards.

ducing what is known as quarter-sawed lumber; or (2) at right angles to the rays and more or less parallel with the annual rings producing what is known as plain-sawed lumber. (See Fig. 2). Lumber cut these two ways from the same log looks decidedly different, which fact must be

taken into consideration in identifying wood. For this reason both quarter-sawed and plain-sawed surfaces are illustrated in this Manual. The identification is further complicated by the fact that lumber is cut in all intermediate planes between quarter-sawed and plain-sawed.

### **Advantages of Quarter-Sawed and Plain-Sawed Lumber**

In some cases quarter-sawed lumber has certain advantages for furniture, while in others plain-sawed lumber is preferred. Quarter-sawed lumber or veneer has a more ornamental figure than plain-sawed or rotary cut veneer in certain hardwoods, such as oak, mahogany and sycamore. (See Figs. 6, 7, and 23). In all woods quarter-sawed lumber shrinks and swells less in width and is less apt to surface check, warp, and cup. On the other hand, in all softwoods and in ring-porous hardwoods without big rays or ribbon figure, such as ash, elm, and chestnut, plain-sawed lumber has a better figure on account of the parabolas and ellipses produced by the annual rings of growth. (See Figs. 4 and 5). Plain-sawed lumber also is cheaper to produce because less care need be exercised in sawing.

## **CHAPTER II**

### **TYPES OF FIGURE IN WOOD**

By figure is meant the variegated appearance of wood as distinct from its color. One of the chief advantages of wood as a furniture material is the variety of figure which may be found in it. A plain color alone, no matter how rich its shade, is not so ornamental as the variations in color or differences in light and shade that are exhibited by numerous species.

Figure in wood is due to one of two things: Irregular infiltration of coloring matter in the wood, or peculiarities of the structure of the wood.

#### **1. Irregular Coloration**

Among native furniture woods red gum is the only species in which the heartwood frequently shows pronounced irregular coloration giving the wood a figured appearance. The coloring matter is of a dark, almost black, nature deposited in streaks which do not strictly follow the grain. (See Fig. 3). The streaks are equally





Fig. 3. Pigment in Matched Red Gum Veneer

pronounced on plain-sawed and quarter-sawed lumber, but quarter-sawed is preferred because it holds its shape better. The origin or nature of the coloring matter is not known.

Among foreign woods, Circassian walnut has streaks similar to red gum. Some species of ebony are streaked alternately black and brown or salmon. Snakewood, or letterwood, has irregular darker patches resembling remotely a snake-skin in color or crude attempts at writing. Rosewood shows wide variation in color. The kind which is most commonly imported is brown or purplish brown with dark brown or black streaks. Tulipwood has narrow yellowish brown and red or purple stripes, resembling tulips to some extent.

## 2. Variations of Structure

**Growth-ring Figure**—The most common type of figure is that produced by the annual rings of growth on plain-sawed surfaces, where they appear as parabolas or otherwise curved lines. The figure is particularly pronounced in ring-porous hardwoods, as in oak, ash, and elm, and in softwoods. (See Fig. 4). A dark filler in the large pores of hardwoods helps to bring out this type of figure. Lumber cut from crooked logs, or logs with bulges on the sides has a more or less contorted growth-ring figure. Occasionally the annual rings are irregularly indented, thereby adding variety to the figure.

Rotary cut veneer gives an even more pronounced growth-ring figure because the veneer cutter follows the annual rings closely but not completely, hence, in running in and out among the rings, it produces broad parabolas in the veneer. (See Fig. 5).

**Flake, or Silver Grain**—The rays in oak and sycamore are large enough to give the wood a "flaked" appearance when quarter-sawed. In all other woods used for furniture the rays are not large enough to add materially to the figure. The rays are frequently referred to as silver grain. (See Fig. 6).

**Stripe or Ribbon Figure**—Interlocked grain, that is alternate layers of wood being spirally inclined around the tree in opposite directions, produces a stripe, or ribbon, figure when quarter-sawed, especially if the wood is lustrous. (See Fig. 7). This type of figure, as well as some of the kinds subsequently described owes its charm largely to the fact that light is reflected from the surface of in-

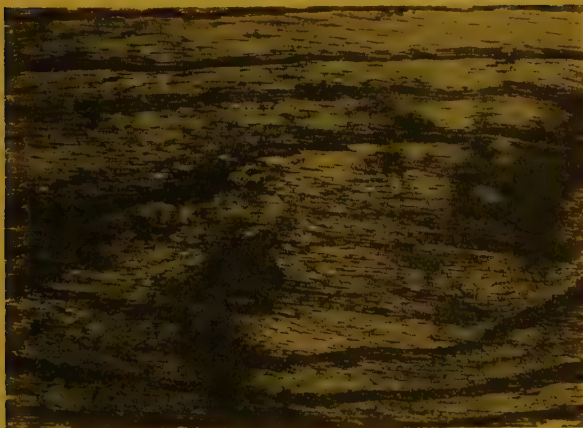


Fig. 4. Growth Ring Figure in Plain-sawed

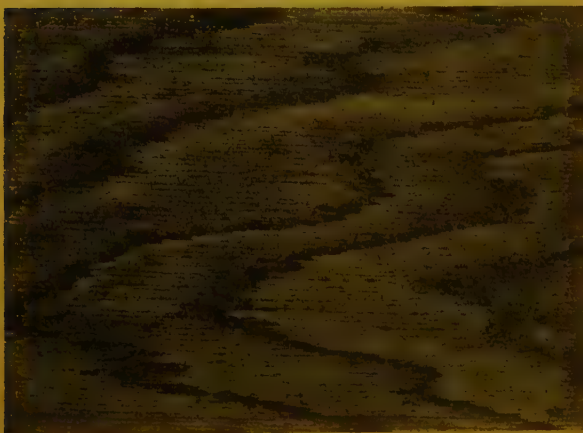
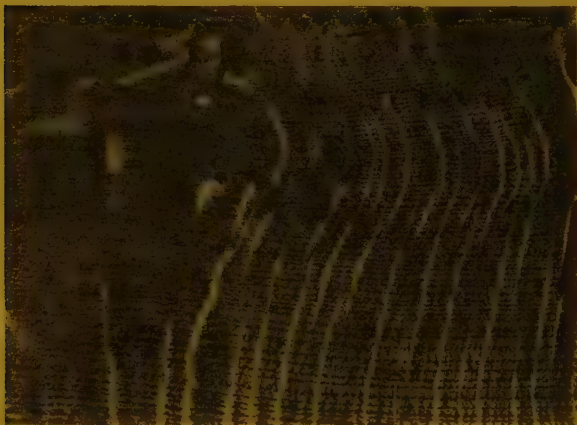


Fig. 5. Growth Ring in Rotary Cut Oak Veneer



**Fig. 6. Quarter-sawed Oak**



**Fig. 7. Stripe, or Ribbon, Figure in Quarter-sawed Mahogany**

dividual fibers instead of from the surface of the board as a whole. Hence, when the fibers run in and out in alternate areas the light also is variously reflected giving the familiar "play" of figure when the angle of vision changes with respect to the surface of the wood.

If the stripe figure runs out every foot or so it is spoken of as broken stripe (See Fig. 8) and if it is still shorter it is called roe. Stripe figure often is pronounced in quarter-sawed mahogany, khaya, tanguile, red lauaan, and other tropical woods. Broken stripe and roe are terms applied mostly to mahogany and allied species.

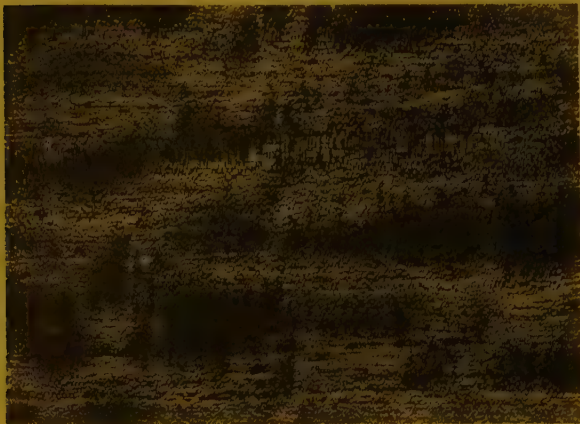
**Wavy and Curly Figure**—Occasionally the fibers in wood assume a wavy course, the crests and hollows of the waves being visible most distinctly on quarter-sawed faces. (See Fig. 9). If the waves are small the figure is called "fiddle-back," because maple with such figure is almost a standard wood for the backs of violins. If the waves occur irregularly the pattern may be called finger roll, mottle, or raindrop. (See Fig. 10). This type of figure is not common to any particular species but may occur in any of a number of species, especially where limbs and roots join the stem. Occasionally an entire trunk may be wavy grained.

When the fibers are irregularly contorted the wood is said to have a curly figure. This type of figure occurs most commonly where the roots or limbs join the stem, although it occurs occasionally in other parts of the stem. Walnut stumps are valued for the curly-figured veneer which can be cut from them. (See Fig. 11). Such figured wood is also spoken of as butt wood. When the figure assumes fantastic shapes it is sometimes referred to as landscape figure. Maple frequently has curly or landscape figure.

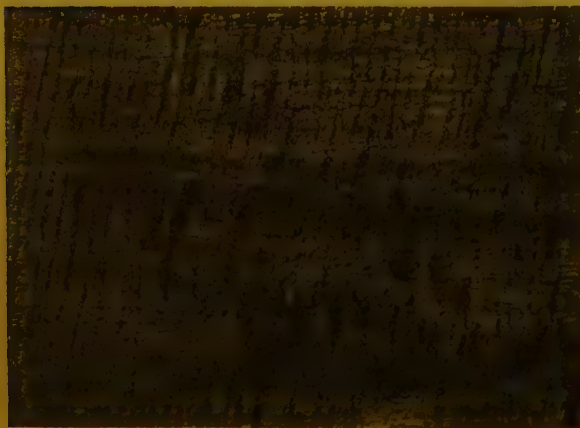
**Crotch Figure**—Crotches in tree trunks or regions where large limbs join the stem produce a peculiar plume-like figure known as crotch mahogany, crotch walnut, etc. (See Fig. 12).

**Blister Figure**—Blister figure occurs in some species but is rare. It is due to an uneven contour of the annual rings as though they had blisters under them. It has been observed by the writer in mahogany, Spanish cedar, yellow poplar, and yellow pine. (See Fig. 13).

**Burls**—Burls are large wart-like excrescences on the tree trunk. The grain in them is so distorted that it cannot be said to run in any particular direction. They occur in



**Fig. 8. Broken Stripes in Mahogany**

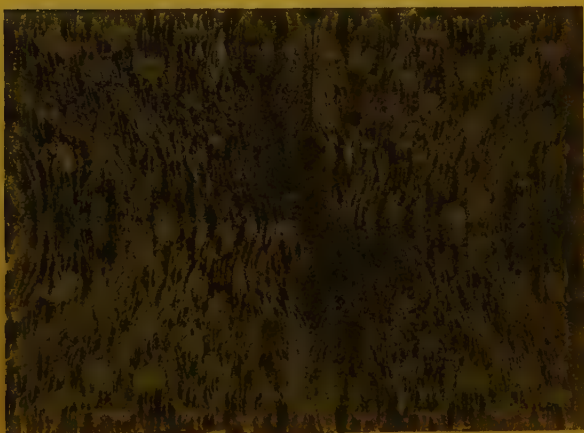


**Fig. 9. Wavy, or Fiddle Back, Figure in Mahogany**

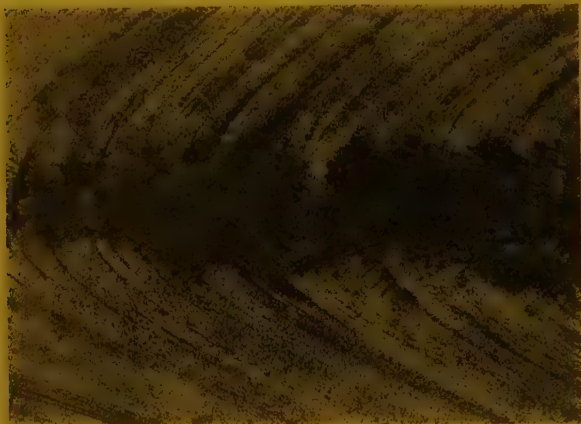




**Fig. 10. Raindrop Figures in Mahogany**



**Fig. 11. Curly Figure, or Butt Wood, of Walnut**



**Fig. 12. Crotch Mahogany**



**Fig. 13. Blister Figure in Mahogany**



numerous species, including ash, cherry, walnut, maple, oak, and redwood. (See Fig. 14). On account of its irregular grain the wood in burls shrinks unevenly and hence is difficult to dry and to lay smoothly in the form of veneer.

**Bird's-eye Figure**—Bird's-eye figure is produced by local indentations of the annual rings. When cut through in a tangential plane, as in plain-sawed and rotary cut veneer, it produces a series of small circlets remotely resembling a bird's eye. (See Fig. 15). It occurs principally in maple. The cause for it is not known.

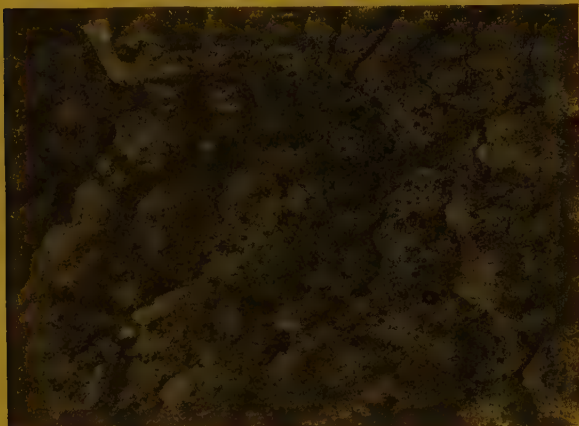
**Knots**—Even knots may have an ornamental effect as is frequently shown in red cedar chests. It is very probable that numerous other species of lumber with sound knots in it might be made into an attractive design for furniture. Thin cross sections of limbs, on account of their eccentric growth rings, have been used as inlay to produce an oyster-shell pattern.

### **Advantages of Veneered Construction in Bringing Out the Figure of Wood**

If it were not for the art of cutting and laying of veneer, many of the decorative effects in wood would not be possible of attainment. This is due to the ways in which veneer is cut and its subsequent manipulation. Veneer is cut into thin sheets either with a knife or a saw. When cut with a knife it is either sliced off in flat sheets or "peeled" off a rotating log in a continuous layer, known as rotary veneer. Sawed veneer, obviously, must be cut in flat sheets.

Sliced and sawed veneer are usually cut from a log or flitch in such a way as to bring out the figure to best advantage. This may be along the radial plane, giving the same figure as occurs in quarter-sawed lumber, or along some other plane not passing through or near the center of the log if that gives a better figure.

Rotary veneer follows the curvature of the annual rings and therefore brings out the parabolas and other curves of the growth ring figure in a continuous pattern without disappearing toward the edges as in plain-sawed lumber. (Compare Figs. 4 and 5). Such figure as is produced by bird's-eye, burly, curly and blister grain is also brought out to best advantage in rotary cut veneer. This method of cutting is frequently modified so that only the best part of the circumference of a stump or burl is peeled off instead of going around completely.



**Fig. 14. Cherry Burl**



**Fig. 15. Bird's Eye Maple**

The following are the decorative advantages that accrue from the use of veneer:

1. Since the wood is cut into thin layers, a relatively small amount of figured wood goes a long way in covering exposed parts of furniture.

2. Since consecutive sheets of veneer are almost identical in appearance, they can be matched by laying them edge to similar edge thereby producing some exquisite patterns. (See Figs. 3 and 11).

3. Wood with greatly distorted grain can be glued down so as to remain permanently flat, while thicker boards of the same wood might warp so much as to make it practically impossible to use it for high grade work.

4. Curved surfaces can be covered with fancy veneer so as to produce an effect impossible of attainment with thicker lumber.

5. The cores of veneered panels can be made of a light wood which does not shrink or warp appreciably, thereby maintaining a smooth surface free from shrinkage cracks.

### CHAPTER III

#### DESCRIPTION OF FURNITURE WOODS

**Oak**—Oak wood is one of the easiest woods to identify of any species, principally because of the large rays present and visible on any surface. Quarter-sawed oak is particularly easy to identify because the rays appear as large "flakes", measuring from one to four inches in the direction in which the grain runs and from one or several inches to occasionally the width of the board at right angles to the grain. (See Figs. 6 and 16B). The rays, or "flakes", are smooth hard patches through which no pores extend.

In plainsawed oak, the rays are cut across and they appear as heavy brownish lines up to about four inches long and tapering to a point at both ends, most easily visible on planed, unfinished surfaces. (See Fig. 16A). If the wood is stained they are not so distinct on the plain-sawed surface. On surfaces which are neither truly plain-sawed nor quarter-sawed the rays may be of any dimension from a broad line to large "flakes". Since quarter-sawed lumber often is not cut exactly parallel to the plane of the rays, the rays may appear to run

diagonally across a board on account of the cut passing through them obliquely.

The rays also are readily visible on the end grain where they appear as heavy lines crossing the annual rings. (See Fig. 1A).

Oak is a ring-porous wood, which means that layers of large pores alternate with layers of denser wood. In quarter-sawed lumber the porous and the less porous layers may appear very narrow, while in plain-sawed oak and rotary cut veneer each of these layers may cover a considerable area on the surface. (See Fig. 16).

A recognized distinction between red oak and white oak lumber is that the former has a slight reddish tinge while the latter is plain grayish brown in color, although this does not always hold.

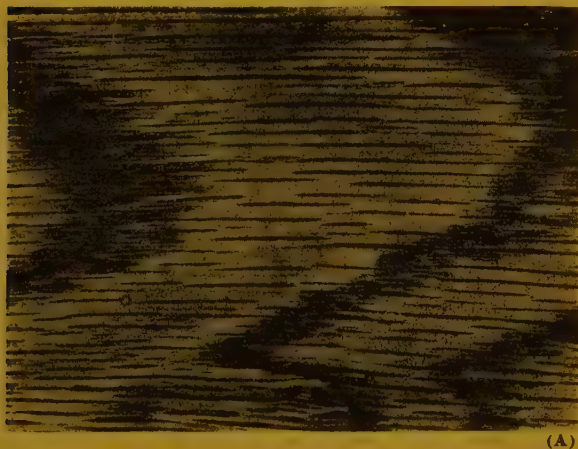
Another difference between these two groups is that the white oaks appear less porous because in the heartwood the large pores are filled with a froth-like substance, known as tyloses, (See Fig. 1A), whereas in the red oaks the pores are more open. This difference, of course, can be observed only before a filler has been applied.\*

There is no consistent difference in strength and hardness between the red oaks and white oaks, and what difference there is in resistance to decay is not important in furniture, since it practically always is kept so dry that it will not decay even when made of species which decay quickly in damp places. The white oaks are preferred for woodwork which is to be given a "natural" finish, because they are usually free from the reddish tinge common in the other group. For darker pieces and hidden parts, however, little discrimination is made between the two.

There are about 60 species of oak in the United States and many in foreign countries, of which only about 15 species are used commercially in this country. They are about equally divided between the two groups.\*\* On the west coast, oak very much like the American species is imported from Japan, and on the East coast small amounts of English oak are imported, particularly some with a deepened brown or yellowish brown color.

\* For a more reliable difference between the white oak group and the red oak group, but one requiring a magnifying glass for observation, see Miscellaneous Forestry Circular "Guide-book for the Identification of Woods Used for Ties and Timbers," by Arthur Koehler, Government Printing Office, Washington, D. C. (Price 80 cents.)

\*\*See page 305 for the names of the more important species of the two oak groups.



(A)



(B)

**Fig. 16. Red Oak**  
(Natural Size)

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.

**White Ash**—Although ash is not used a great deal in household furniture, it is commonly used for refrigerators. The wood is distinctly ring-porous, having a broad zone of large pores in each annual ring. Like elm, only to a less pronounced extent, the small pores form a somewhat wavy pattern between the zones of large pores on plain-sawed surfaces. (See Fig. 17A). The rays in ash are small and inconspicuous. (See Fig. 17B).

The heartwood is light grayish brown in color, sometimes tinged with red. The sapwood, which is white, is wide and, therefore, constitutes a large part of ash lumber.

White ash lumber is heavy and hard, but black ash, which is less abundant, is somewhat lighter and softer.

**Chestnut**—The cores of veneered tops, fronts, and side panels are commonly made of chestnut, but the wood is rarely used for surface parts because it is too soft to stand much rough usage.

The structure of chestnut is much like that of oak, to which it is closely related, except that it has no large rays. Each annual ring contains a broad zone of large pores which together with its moderately light weight are the chief distinguishing features of the wood. (See Fig. 18). The heartwood is grayish brown in color.

**Elm**—American, white, or gray elm is the principal species of elm used in furniture. Occasionally slippery elm and rock elm are also used but the amount of all species used for furniture is comparatively small.

A unique feature of American and rock elm is that they have only one row of large pores in each annual ring. Consequently these species do not look as porous as oak and ash. Slippery elm has several rows which makes the wood look more porous.

A characteristic of all elms is that the small pores are arranged in wavy layers within the annual rings. By reason of this arrangement of the pores a fine wavy pattern is produced in plain-sawed surfaces. (See Fig. 19A).

The rays in elm are small and inconspicuous. (See Fig. 19B). Elm heartwood is pale to dark reddish brown while the sapwood is almost white. The wood of the American and slippery elms is moderately heavy while that of rock elm is appreciably heavier.

**Walnut**—Black walnut, or American walnut as it is sometimes known in the trade, has smaller pores than oak and they are not zonate at the beginning of each annual ring, instead they decrease in size slightly and gradually across the annual ring thereby producing a mild



(A)



(B)

Fig. 17. White Ash  
(Natural Size)

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.



growth-ring pattern when plain-sawed. (See Fig. 20A). If the annual rings are wide they give quarter-sawed walnut a mild stripe figure. The rays are not conspicuous on longitudinal surfaces. (See Fig. 20B).

Circassian walnut is imported from Europe in relatively small quantities. In structure it resembles black walnut but it is lighter in color and has irregular dark streaks.

Black walnut is a standard furniture wood in this country but Circassian walnut is not used a great deal because of its scarcity and high price. The wood of both species is heavy and hard, which together with their relative freedom from warping and their ornamental figure makes them highly suitable for furniture.

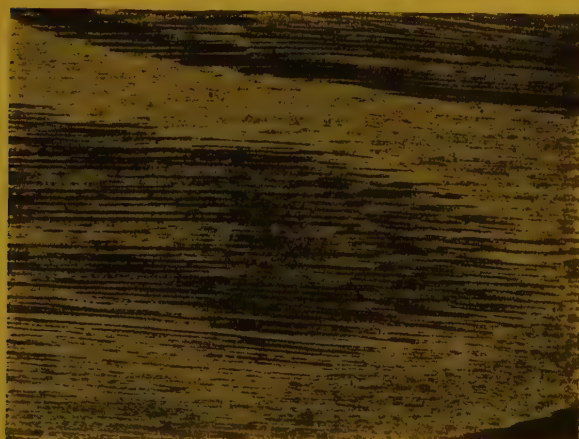
**Mahogany**—Many species of wood have been called mahogany but the original and true mahogany comes from the botanical genus *Swietenia* which grows naturally only in tropical America. Since wood of the African genus *Khaya*, which is commonly known in the trade as "African mahogany", is closely related to the American mahogany and resembles it so much in color, structure, figure, properties, and value that practically no distinction is made between the two, it is also described here.

In both the American and African species the pores are plainly visible as fine grooves on longitudinal surfaces. They are fairly uniform in size and evenly distributed. (See Figs. 1B and 21). In the natural wood dark amber colored gum can be seen in the pores—a characteristic of many species of the mahogany family. The rays are inconspicuous except on truly quarter-sawed surfaces, on which they appear lighter or darker than the background depending on how the light strikes the wood. (See Fig. 21B).

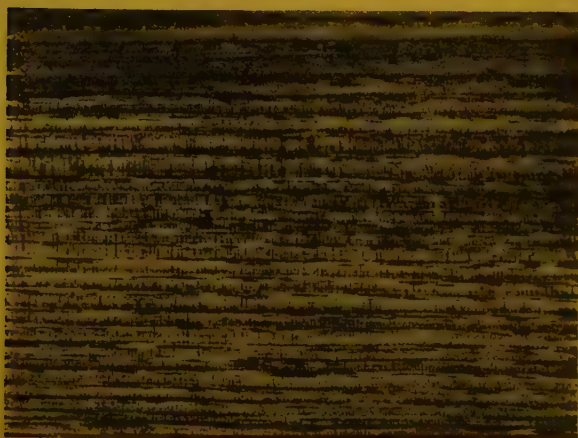
An important quality of these woods is that they are highly lustrous. This means that any irregularity in the direction of the fibers, such as cross grain and curly grain, shows up to good advantage and adds to the figure of the wood. These woods are usually cross grained, and hence quarter-sawed lumber has a stripe, or ribbon, figure. Other types of figure such as mottle, fiddle-back, curly, and blister figure occur only sporadically.

A difference between the wood of *Swietenia* and *Khaya* is that in the former there are well defined growth rings marked off by fine lighter colored lines which appear on the cross section as concentric rings (See Fig. 1B) and on plain-sawed surfaces as straight or curved lines or





(A)



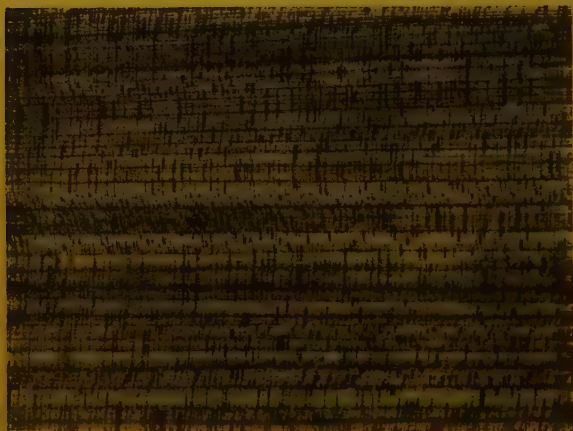
(B)

Fig. 18. Chestnut  
(Natural Size)

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.



(A)

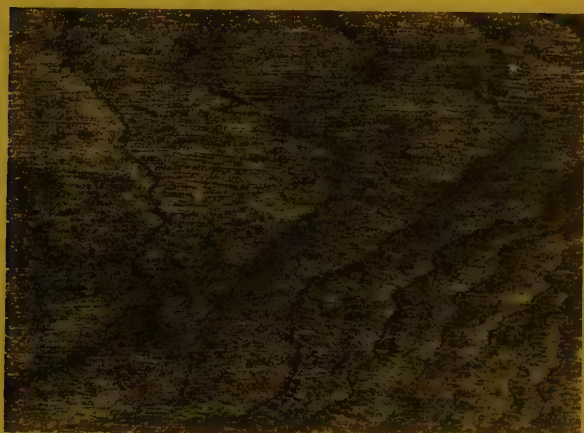


(B)

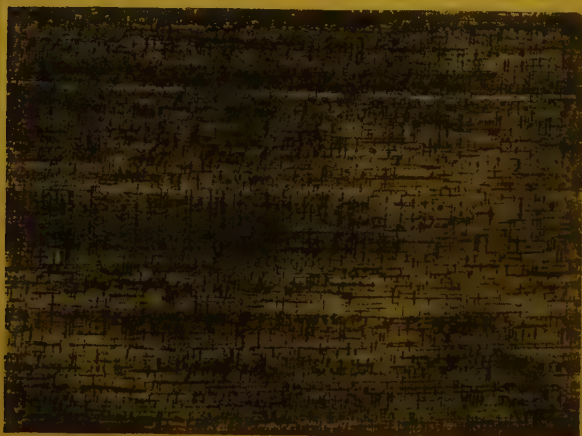
**Fig. 19. American Elm**  
(Natural Size)

(A) Plain-sawed surface.

(B) Quarter-sawed surface.



(A)



(B)

**Fig. 20. Black Walnut**  
(Natural Size)

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.

irregular parabolas. (See Fig. 21A). In the African species well-defined growth layers are lacking.

The color of mahogany is reddish brown, the shade however varies from light to dark. On exposure to light it becomes darker, hence old mahogany furniture is dark in color.

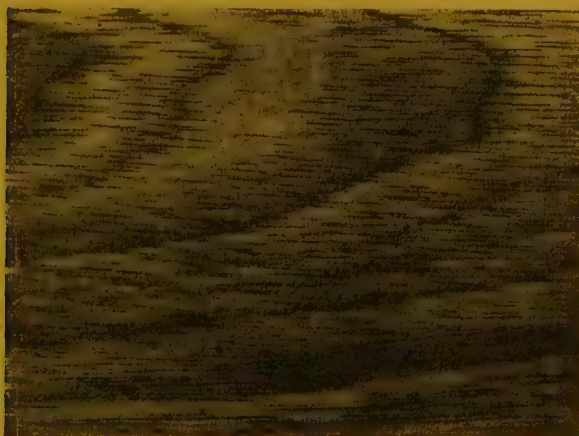
Mahogany varies considerably in weight and hardness. Some of the Central American mahogany is so soft that it is not suitable for exposed parts of furniture which is to receive hard usage. The soft mahogany, also, is light colored. The Cuban mahogany, on the other hand, is relatively heavy and hard, and is dark colored. The wood of the African species of *Khaya* does not vary as much in weight, hardness, and color as does that of the species of *Swietenia*.

The use of mahogany in furniture is so well known that it hardly needs comment except to point out the reasons for its popularity. Mahogany has a rare combination of properties which make it suitable for furniture, cabinets, instruments, etc. These properties are: It works easily under tools, yet has sufficient hardness to resist wear reasonably well; it shrinks, checks, or warps very little; it finishes easily; and it has a pleasing color and figure.

**Tanguile and Red Lauaan**—These two species of Philippine hardwood have been marketed as "Philippine mahogany" although they belong to a different family and differ somewhat from true mahogany in structure, appearance, and properties. However, they also resemble mahogany in some respects. The pores in tanguile and red lauaan are of about the same size as in mahogany and are also evenly distributed. No recognizable yearly growth layers are present, however. A distinct difference is that the pores contain an iridescent froth-like substance known as tyloses, whereas mahogany has dark gum in the pores. The rays are not conspicuous except in true quarter-sawed surfaces in which they may be plainly seen in contrast to the background due to differences in reflection of light.

The color of tanguile and red lauaan is reddish brown resembling mahogany, except that the former, especially often has a slightly purplish tinge. Lumber of these species fades in bright light but properly stained furniture should not change in color.

Red lauaan and tanguile are usually cross grained which together with the natural lustre of the wood gives quarter-sawed lumber a beautiful ribbon figure. Other irregular



(A)



(B)

**Fig. 21. Mahogany**  
(Natural Size)

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.

ities in the grain are also occasionally present to enhance the figure of the wood.

**Birch**—Yellow birch and sweet birch are the two species of birch most commonly used in furniture, although occasionally white birch is also used, especially in the form of dimension stock.

In the birches the pores are of such a size that they are just barely visible as fine grooves on longitudinal surfaces. (See Fig. 22). If a dark filler is applied the pores become more readily visible. The pores are uniformly distributed. The annual rings are defined by a thin layer of slightly darker tissue. The rays are invisible except on strictly quarter-sawed surfaces in which they appear as minute reddish brown flakes smaller than in maple. (See Fig. 22B).

The heartwood is light to moderately dark reddish brown in color, usually it is darker in sweet birch than in the other two species. The wide sapwood is practically white. There are no distinct diagnostic features by means of which the three species can readily be distinguished from each other.

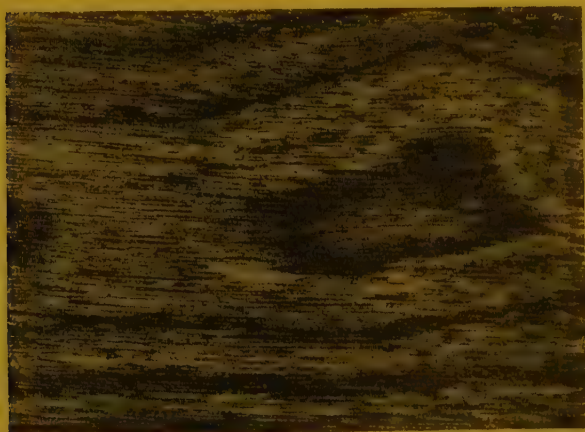
The wood of the yellow and sweet birch is heavy and hard, comparable to that of sugar maple, while the wood of paper birch is lighter and softer, more like that of the soft maples.

Birch is used extensively for furniture. It is often stained to resemble mahogany but occasionally is given a "natural" finish. Much of the birch used for furniture is used in the form of veneer.

**Sycamore**—Although sycamore is not a common furniture wood, it deserves mention because of the striking figure which it has when quarter-sawed. The rays, which give it the figure, are reddish brown in color and from  $\frac{1}{16}$  to  $\frac{3}{16}$  inch in height, which is larger than the rays are in any other common native wood except oak. (See Fig. 23B). On plain-sawed surfaces the rays appear as dark dashes crowded close together. (See Fig. 23A). The pores are not visible in sycamore and the rings are not very distinct. The wood is reddish in color, and is in the same weight class with red gum.

Sycamore is a cross-grained wood and therefore has a tendency to warp unless properly dried. This handicap, together with the frequency of the defect known as shake, and the fact that the wood is not abundant limits its use in furniture.





(A)



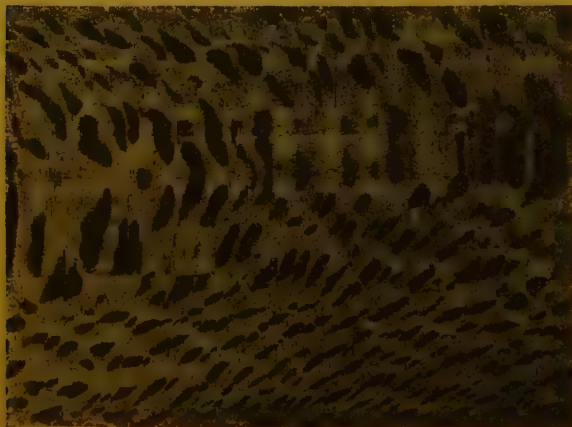
(B)

**Fig. 22. Birch**  
**(Natural Size)**

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.



(A)



(B)

Fig. 23. Sycamore  
(Natural Size)

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.



**Beech**—The pores in beech are invisible without magnification. They are more numerous in the inner part of the annual ring decreasing slightly in size and number toward the outer part, thereby making the outline of the annual rings faintly discernible on longitudinal surfaces.

The chief diagnostic feature of beech is the medullary rays, which appear as distinct darker flakes from  $\frac{1}{16}$  to  $\frac{1}{8}$  inch in height on quartered or nearly quartered surfaces. (See Fig. 24B). On plain-sawed surfaces they appear as dark dashes of the same height. (See Fig. 24A).

The color of beech ranges through various shades of light reddish brown. The heartwood is not distinct from the sapwood. The wood ranks in the same class with sugar maple in weight and hardness.

Beech rarely is figured. Its principal use in furniture is for frames, drawer sides and runways, bent chair backs, and rocker runners.

**Maple**—In the trade, maple lumber is usually classified as hard maple and soft maple, the former being produced by the sugar maple tree and the latter by red maple and silver maple trees. On the West Coast a fourth species, bigleaf maple, is used locally. It is slightly lighter and softer than sugar maple.

In all the maples the pores are so small that they are not visible without magnification. They are also uniformly distributed, which gives the wood a very homogeneous texture. The annual rings are clearly defined, however, by a thin reddish brown layer, which together with the smaller pores helps in distinguishing maple from birch. (See Fig. 25).

The rays, although less than  $\frac{1}{16}$  inch in height, are very conspicuous as reddish brown flakes on quarter-sawed surfaces. (See Fig. 25B).

The chief distinction between the soft maples and the sugar maple is the difference in hardness, noticeable particularly in trying to cut the wood across the grain. Sugar maple belongs in the same weight and hardness class with birch and beech.

Pith flecks, which are brownish streaks running more or less parallel with the grain and from a fraction of an inch to several inches in length, are common in the soft maples but rare in sugar maple. Other diagnostic features can be seen only under magnification.

The heartwood is light reddish brown. The wide sapwood is nearly white in color. The sapwood, on account



(A)



(B)

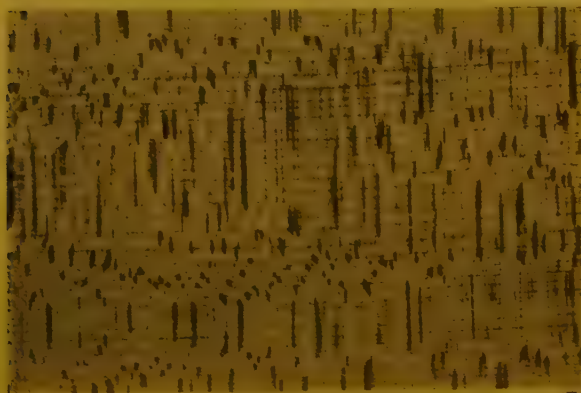
**Fig. 24. Beech**  
(Natural Size)

(A) Plain-sawed surface.

(B) Quarter-sawed surface.



(A)



(B)

Fig. 25. Sugar Maple  
(Natural Size)

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.

of its light color, is preferred for furniture to be given a natural finish.

Since maple usually is given a natural finish, its use is limited largely to bedroom, porch, and kitchen furniture.

**Cherry**—Although cherry wood is little used for furniture at the present time, on account of its scarcity, one not infrequently runs across old pieces made of cherry.

In color it resembles mahogany, but it lacks the figure that has contributed so much to make mahogany the premier cabinet wood of the world. Like mahogany, however, one of the chief assets of cherry wood is that it holds its shape well.

The pores in cherry are much smaller than those in mahogany, being just barely or not at all visible as minute grooves on longitudinal surfaces. They decrease slightly in size from the inner to the outer part of each year's growth thereby making the annual rings distinct but not conspicuous on longitudinal surfaces. The rays are distinct on truly quarter-sawed surfaces only.

Black cherry wood is a little lighter and softer than yellow birch or sugar maple and a little firmer than red gum.

**Red gum**—In red gum the pores, rays, and annual rings are inconspicuous, in fact the wood has no outstanding structural peculiarities which help in distinguishing it. (See Fig. 26). The uniform texture and reddish brown color of the heartwood are the chief means of recognition. Frequently the heartwood contains irregular dark streaks which give the wood a distinctive figure. (See Fig. 3). Lumber so streaked is known as "figured red gum", whereas the unfigured lumber is known as "plain red gum".

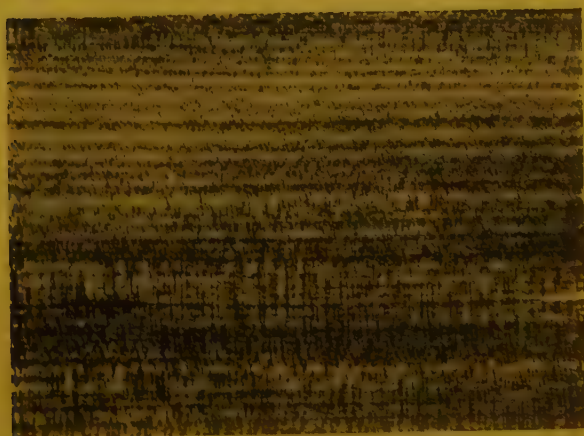
The sapwood, which often is relatively wide in this species, has a slightly pinkish hue. Occasionally it is darkened by sap-stain or other fungi. The sapwood is known in the trade as "sap gum", while the term "red gum" is confined principally to heartwood lumber.

Both heartwood and sapwood are cross grained which gives the wood a tendency to warp, especially when plain-sawed. By drying the lumber properly and taking reasonable care of furniture serious warping can be avoided, however. Since red gum is not highly lustrous, like mahogany, quarter-sawed lumber does not show a pronounced ribbon figure in spite of being cross grained.

The popularity of red gum for furniture is due to the ease with which it can be worked and finished, its nat-



(A)



(B)

Fig. 26. Red Gum  
(Natural Size)

- (A) Plain-sawed surface.
- (B) Quarter-sawed surface.

urally, attractive color and figure, and its adaptability for imitating mahogany and walnut. In furniture it is often used in combination with mahogany and walnut, especially for structural parts such as chair legs, bed posts, corner posts of dressers, chiffoniers, etc.

**Yellow Poplar and Magnolia**—Yellow poplar is a wood of remarkably uniform texture and straight grain. The pores are too small to be visible without magnification and are evenly distributed. The annual rings, which are defined by thin light colored layers, are not prominent. The rays also are inconspicuous on longitudinal surfaces.

The heartwood is light yellowish green in color or occasionally purplish brown. The sapwood is nearly white. The uniform texture and yellowish tinge are the chief diagnostic features of the wood.

There are several species of magnolia which closely resemble yellow poplar and are often marketed as such although they average somewhat heavier and harder. On account of their greater hardness the magnolias are better suited for exposed parts of furniture than yellow poplar which is used mostly for cores of panels, cross banding over the cores, and hidden parts.

**Tupelo Gum and Black Gum**—Although these species are not botanically related to red gum they have much in common with it. Like red gum, they have no outstanding structural features, the pores, rays, and annual rings being inconspicuous. The color of tupelo gum and black gum is not reddish, however, instead it is a dead white or grayish white.

Both species are cross grained and, therefore, have a tendency to warp, especially when plain-sawed, unless properly dried and taken care of subsequently.

Tupelo gum is highly variable in weight and hardness, the softer wood being almost spongy and the harder as hard as black gum. A great deal of tupelo gum is used for cores of panels, but some is also used for exposed parts, especially in the cheaper grades of furniture, or painted furniture, such as breakfast sets.

Black gum is not used so much in furniture largely because of its greater tendency to warp. Attempts have, however, recently been made to use it in the form of quarter-sawed veneer on account of the stripe figure due to interlocked grain. The stripe shows up more, however, on account of irregular absorption of stain than any natural luster, as in mahogany.

**Basswood**—Basswood is too soft to be used for parts

of furniture which receive considerable wear, but it is frequently used for core stock. Its white or very pale brown color makes it a desirable wood for kitchen table tops which are to be used unfinished.

The pores are very uniform in size and not visible without magnification. The annual rings are indistinct. The rays are inconspicuous except on quarter-sawed surfaces but even there they are not pronounced. The wood has a slight odor which together with its creamy white color and uniform texture are the chief means of identification.

## CHAPTER IV

### KEY FOR THE IDENTIFICATION OF COMMON FURNITURE WOODS BY MEANS OF CHARACTERISTICS SEEN ON LONGITUDINAL SURFACES

- I. Wood ring porous, that is, a zone of larger pores marking each annual ring.
  1. Porous zone mostly 2 to 4 pores wide.
    - A. Rays large ( $\frac{1}{2}$  to 4 inches in height) appearing as flakes on quarter-sawed surfaces and as distinct lines on plain-sawed surfaces. Wood heavy and hard.
      - (a) Heartwood usually with reddish tinge.....Red oak group
      - (b) Heartwood usually without reddish tinge.....White oak group
    - B. Rays small and inconspicuous.
      - (a) Wood moderately light and soft. Heartwood grayish brown.....Chestnut
      - (b) Wood heavy and hard. Heartwood light grayish brown.....White ash
  2. Porous zone 1 pore wide. Wood moderately heavy and moderately hard. Heartwood grayish brown or reddish brown. Plain-sawed surfaces figured with fine wavy pattern. (See Fig. 19A).....American elm
- II. Wood diffuse-porous, that is, no zone of larger pores present in each annual ring.
  1. Pores visible as distinct grooves, usually filled with dark filler in finished wood.
    - A. Pores decreasing slightly in size from inner to outer part of annual ring thereby defining the annual rings. Pores contain glistening tyloses.



- (a) Heartwood chocolate brown.....  
.....*Black walnut*
- (b) Heartwood fawn brown, usually with  
dark irregular streaks.....  
.....*Circassian walnut*
- B. Pores of nearly uniform size throughout.
  - (a) Pores partly filled with dark amber-  
colored gum. Heartwood light to dark  
reddish brown. Wood moderately  
light to heavy and moderately soft to  
hard.
    - (aa) Annual rings defined by thin  
lighter colored layers.....  
.....*True mahogany*
    - (bb) Annual rings not clearly defined  
.....*Khaya (African mahogany)*
  - (b) Pores do not contain dark gum, in-  
stead glistening tyloses. Annual rings  
not defined. Heartwood in various  
shades of reddish brown, usually with  
slight purplish tinge. Wood mod-  
erately light to heavy and moderately  
soft to hard.....*Red lauaan. Tanguile*
  - (c) Pores mostly empty, smaller than in  
mahogany. Annual rings clearly de-  
fined but not conspicuous. Heartwood  
reddish brown, the wide sapwood  
white. Wood heavy and hard....*Birch*
- 2. Pores not distinctly visible.
  - A. Rays conspicuous as darker patches on  
quarter-sawed surfaces and dashes on plain-  
sawed surfaces.
    - (a) Rays up to  $\frac{1}{4}$  inch high. Heartwood  
light reddish brown. Wood moderately  
heavy and moderately hard....*Sycamore*
    - (b) Rays up to  $\frac{1}{8}$  inch high. Heartwood  
pinkish white or pale reddish brown.  
Wood heavy and hard.....*Beech*
    - (c) Rays up to  $\frac{1}{16}$  inch high. Heartwood  
pale reddish brown, the wide sapwood  
white.
      - (aa) Wood heavy and hard, difficult  
to cut across the grain. Pith  
flecks rare.....*Sugar maple*
      - (bb) Wood moderately heavy and  
moderately hard, fairly easy to



- cut across the grain. Pith  
flecks often abundant.....  
.....*Silver maple. Red maple*
- B. Rays not conspicuous, although usually distinct on quarter-sawed surfaces.
- (a) Heartwood rich reddish brown and lustrous, resembling mahogany. Annual rings clearly defined by differences in porosity of adjoining portions of adjacent annual growth layers. Wood moderately heavy and moderately hard; straight grained.....*Black cherry*
- (b) Heartwood dingy reddish brown often with darker streaks, not lustrous. Wood moderately heavy and moderately hard; grain interlocked. The sapwood, known as "sap gum", is pinkish white unless darkened by stain.....*Red gum*
- (c) Heartwood yellowish brown usually with greenish, occasionally with dark purplish, tinge. Wood straight grained.
- (aa) Wood moderately light and moderately soft....*Yellow poplar*
- (bb) Wood heavy and hard.....  
.....*Magnolia*
- (d) Heartwood grayish white. Wood moderately heavy and hard to light and soft; grain interlocked.....  
.....*Tupelo gum. Black gum*
- (e) Heartwood creamy white. Wood moderately light and moderately soft; grain straight.....*Basswood*

## CHAPTER V

## RARE DECORATIVE WOODS

In addition to the woods described there are a number of species which are highly decorative but on account of their scarcity or difficulty in working up are used to a much more limited extent.

**Rosewood**, like mahogany, is a name which has been applied by the trade to a large number of species. True rosewood comes from Brazil and is produced by a tree known locally as jacaranda. The wood is relatively hard

and heavy and fairly straight grained. Its color varies considerably but the prevailing color is brown or purplish brown with darker, sometimes almost black, streaks. It has a mild odor, resembling roses, which is more pronounced in green than in seasoned timber. Regarding its uses Professor Record says, "Brazilian rosewood has been extensively used for furniture and cabinet-work, but at present there is little demand for it for these purposes in the United States, the principal use here being for spirit levels, butcher-knife handles, and to a minor extent for billiard tables and phonograph cabinets. It is probable that with changing styles in furniture there will again be a larger demand for rosewood."

**East Indian, or Ceylon Satinwood** is a highly figured wood, light yellow to golden brown in color, with a satiny lustre. The tree grows to large size but the logs frequently contain numerous defects. On account of its figure it is used as a decorative wood mainly in the form of veneer.

**West Indian Satinwood** resembles the East Indian species except that it is not so highly figured and not so variable in color, being more uniformly yellow. It has a distinct but mild fragrant odor resembling that of cocoanut oil. Most of the antique satinwood furniture is of this wood, since in the early days it was more readily available than the Oriental species. Some of the wood is oily in nature, which may cause trouble in gluing and finishing. It grows in the West Indies and southern Florida.

**Prima Vera, or "White Mahogany"**, as it has been called, grows in Mexico and Guatemala. In structure it resembles mahogany including the interlocked grain which gives it a stripe figure when quarter-sawed, but in color it is pale yellowish brown, resembling the East Indian satinwood. It is light in weight and easily worked. For furniture it is used largely in the form of veneer.

**Vermillion, also called Andaman Padauk**, the East Indian mahogany, has a cherry red to reddish brown color. Unfortunately the red color fades to a golden brown hue. The wood is hard enough to stand rough usage but can be worked fairly easily. The wood usually has a mild stripe figure due to slight cross grain. Occasional logs contain more highly figured wood. This is the species which was used extensively for the interior of Pullman cars before steel replaced wood for this purpose. It grows on the Andaman Islands.

**Tulipwood** is a Brazilian species with yellowish and red

or purple stripes resembling certain tulips in color. It is exceptionally heavy and hard. In furniture manufacture it is used chiefly for inlays, but, on account of its scarcity, the amount used is small.

**Snakewood**, or **Letterwood**, is a very hard wood which grows in the Guianas. The wood is reddish brown with irregular darker patches resembling a snake skin or crude writings—hence its names. It is used somewhat for cabinet work but owing to its small size it is used more for walking canes, umbrella handles, and small fancy articles.

**Purpleheart**, **Amaranth**, or **Violetwood**, is a rather hard wood native of northern South America. Its name is descriptive of its color. It has been used for inlay, cabinets, billiard tables, and smaller ornamental articles.

**Koa** is a Hawaiian wood of moderate hardness. It is reddish chestnut brown in color and highly lustrous, but usually without any appreciable figure. It is used for cabinets and musical instruments, especially the ukulele.

**Teak** has a golden brown color, but usually is without any distinctive figure. It is only moderately heavy and hard and therefore easily worked. It shrinks, swells, and warps little, which together with its high durability and resistance to insect attack, including white ants, has made it much in demand for construction in the tropics and in boat building. It is used relatively little for furniture in this country. Teak is one of the relatively few ring-porous tropical woods. It grows in India, Burma, Malay Peninsula, and Java.

**Ebony** is a name applied to a number of blackish woods, although true ebony is obtained only from the botanical genus *Diospyros*, of which the native persimmon is a species. The ebony of commerce is derived mostly from India, Ceylon, Madagascar, and east and west coasts of Africa. The wood is not always jet black but may be streaked with creamy white, salmon, reddish-brown, or variegated tints. It is very heavy and very hard which makes it difficult to season and work. It is used mainly for inlay, piano keys, small musical instruments, and small handles.

**Holly** is a hard, white or grayish white wood which grows in this country and Europe. It is valued chiefly for inlay work on account of its whiteness and the smooth polished surface which can be given to it.

**Cypress** veneer made from stumps with distorted grain

has recently been put on the market under the name of faux-satine.

**Redwood** burls have been used for decorative purposes on chair backs, drawer fronts, and other conspicuous parts of furniture.

**English Oak** is a name applied to oak grown in England which has a peculiar golden brown color found only in occasional trees. It is not a separate species. In England it is known as "brown oak."

**Pollard Oak** is a name applied in England to oak burls or excrescences on tree trunks. As in burls on American trees, the grain is much twisted and contorted and contains numerous dark "eyes" which are the cores of buds or sprouts.

## CHAPTER VI

### COMMON AND SCIENTIFIC NAMES OF FURNITURE WOODS

Ash, black—*Fraxinus nigra* Marshall.

Ash, green—*Fraxinus pennsylvanica lanceolata* (Borkh.) Sargent. (Called white ash in the trade.)

Ash, white—*Fraxinus americana* Linn.

Basswood—*Tilia* (several species).

Beech—*Fagus grandifolia* Ehrh.

Birch, paper—*Betula papyrifera* Marshall. (Also called white birch.)

Birch, sweet—*Betula lenta* Linn. (Also called red birch.)

Birch, yellow—*Betula lutea* Michx. f.

Cherry, black—*Prunus serotina* Ehrh.

Chestnut—*Castanea dentata* (Marsh.) Borkh.

Cypress, pond—*Taxodium adscendens* Brong.

Cypress, southern—*Taxodium distichum* (Linn.) Richard.

Ebony—*Diospyros henum* Konig (and other species.)

Elm, American—*Ulmus americana* Linn. (Also called white, grey, or soft elm.)

Elm, rock—*Ulmus racemosa* Thomas.

Elm, slippery—*Ulmus fulva* Michx. (Also called red elm.)

Gum, black—*Nyssa sylvatica* Marshall.

Gum, red—*Liquidambar styraciflua* Linn. (Also known as sweet gum, and the sapwood as sap gum.)

Gum, tupelo—*Nyssa aquatica* Linn.

Holly—*Ilex* (several species.)

Khaya—*Khaya* (several species.) (Also called African mahogany.)

Koa—*Acacia koa* Gray.

- Lauan, red—*Shorea negrosensis* Foxw. (Also called Philippine mahogany.)
- Magnolia, cucumber—*Magnolia acuminata* Linn.
- Magnolia, evergreen—*Magnolia grandiflora* Linn.
- Mahogany—*Swietenia* (several species.)
- Maple, bigleaf—*Acer macrophyllum* Pursh.
- Maple, Red—*Acer rubrum* Linn. (Also called soft maple.)
- Maple, silver—*Acer saccharinum* Linn. (Also called soft maple.)
- Maple, sugar—*Acer saccharum* Marsh. (Also called hard maple.)
- Oak (principal native species.)
- Red oak group:
- Black oak—*Quercus velutina* Lam.
- Pin oak—*Quercus palustris* Muenchh.
- Red oak—*Quercus borealis* Michx. and *Q. borealis maxima* (Marsh.) Ashe. (Formerly *Q. rubra* of authors, not Linn.)
- Southern red oak—*Quercus rubra* Linn. (formerly *Q. digidata* [Marsh.] Sudw.)
- Texan oak—*Quercus texana* Buckl.
- Willow oak—*Quercus phellos* Linn.
- White oak group:
- Bur oak—*Quercus macrocarpa* Michx.
- Chestnut oak—*Quercus montana* Willd.
- Chinquapin oak—*Quercus muehlenbergii* Engelm.
- Overcup oak—*Quercus lyrata* Walt.
- Post oak—*Quercus stellata* Wang.
- Swamp chestnut oak—*Quercus prinus* Linn. (Formerly *Q. michauxii* Nutt.)
- Swamp white oak—*Quercus bicolor* Willd.
- White oak—*Quercus alba* Linn.
- Oak, English—*Quercus pedunculata* Erhart or *Q. sessiliflora* Salisbury (called brown oak in England.)
- Poplar, yellow—*Liriodendron tulipifera* Linn. (Also called tulip poplar and whitewood [sapwood only].)
- Prima vera—*Tabebuia donnell-smithii* Rose. (Also called white mahogany.)
- Purpleheart—*Peltogyne* (several species.) (Also called amaranth and violet wood.)
- Redwood—*Sequoia sempervirens* (Lambert) Endlicher.
- Rosewood—*Dalbergia nigra* Fr. Allem.
- Satinwood, East Indian—*Chloroxylon swietenia* DC. (Also called Ceylon satinwood.)
- Satinwood, West Indian—*Xanthoxylum flavum* Vahl.

- Snakewood—*Piratmera guianensis* Aubl. (and other species.) (Also called letterwood.)  
 Sycamore—*Platanus occidentalis* Linn.  
 Tanguile—*Shorea polysperma* Merr. (Also called Philippine mahogany.)  
 Teak—*Tectona grandis* Linn.  
 Tulipwood—(species undetermined.)  
 Walnut, black—*Juglans nigra* Linn. (Also called American walnut.)  
 Walnut, Circassian—*Juglans regia* Linn. (Also called English, Persian, French, Italian, and Turkish walnut.)  
 Vermillion—*Pterocarpus dalbergioides* Roxb. (Also called Andaman padouk and East Indian mahogany.)

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## PART V

# *Veneers and Plywood*

By E. V. Knight and Meinard Wulpi

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and Plywood", published and copyrighted by the  
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# *Veneers and Plywood*

## CHAPTER I

### HISTORIC SKETCH

#### **Veneering 3,500 Years Ago in Egypt**

When the art of veneering was first practiced is not known, but we do know from actual specimens that it was highly perfected thirty-five centuries ago. That was in Egypt, the remarkable nation which transmitted to posterity practically all the ancient arts.

Egyptian furniture, veneered and inlaid, has been taken from tombs, where it has been preserved intact. The examples found stand as mute testimony to the skill and artistry of those early craftsmen, whose work moderns would find it impossible to duplicate without our highly developed appliances and machinery. Little is known of the methods used, but the wood was sawed into sheets and made to adhere to the heavier base woods through the use of a glue of exceptional adhesive qualities. Nothing during the ensuing 3,500 years has been found to excel this Egyptian veneered furniture. Egypt produced few woods suitable for ornamental purposes except the date and doom palms, the sycamore, tamarisk and acacias, therefore she imported rare woods from India—ebony and perhaps rosewood and teak.

Many samples of Egyptian veneered furniture have been pictured and described. In the Cairo Museum is the bed found in the tomb of Iouya and Touya, great-grandparents of the wife of Tutankhamen. The head-board of this famous piece is plywood built, with veneered panels and inlay. Fine and beautiful caskets, used for burial of ancient Egyptian kings, queens and members of royal families, were veneered. In the Metropolitan Museum of New York is a royal casket of the Twelfth Dynasty. This casket is veneered—plywood construction throughout. The cabinet and embroidery stands belonging to the queens of Egypt were beautifully veneered and inlaid with rare woods, gold and lapis lazuli, showing the handicraft of master artisans.

#### **In Babylonia and Assyria**

The Babylonians and Assyrians evidently learned the art of veneering from the Egyptians, or employed Egyptian

artisans. In Nineveh and Judea, at the time of King Solomon, ebony, teak and Indian walnut were used, and they frequently were overlaid and inlaid with ivory. From alabaster bas-reliefs, statuary, paintings and seals or cylinders, which have survived, writers of history and art note inlay and veneering as conspicuous decorative features of many pieces of furniture.

### **In Ancient Greece**

All evidence indicates that veneering was used for adornment on Greek furniture, but evidently to a lesser degree than in Egypt. Wooden furniture was frequently inlaid with glass, ivory and metal plates. Beds of wood were sometimes ornamented in tortoise shell and veneers of fine wood.

### **In Rome**

The Romans used veneers on an extensive scale in their furniture, door frames and panels. Cicero gave 1,000,000 sesterces—\$20,000—for a veneered table of citrus wood. Pliny's Natural History contains one whole chapter devoted to veneering.

Nearly all the Oriental peoples knew about veneering, but none developed the art so perfectly as the Egyptians.

### **Veneering in Eclipse**

With the fall of Rome all the arts went into eclipse, including veneering. During the Middle Ages practically the only trace of woods used as inlays and veneers is seen in the style known as Byzantine. A typical Byzantine piece which has survived from the Middle Ages is the Chair of St. Peter, in the Vatican at Rome. This is richly veneered and inlaid with ivory and gold. Nowhere in Europe were the arts of veneer and of plywood practiced.

### **Renaissance of Veneering**

In the history of veneers and of plywood, the Italian Renaissance marks a return of inlay as a form of decoration. Woods more suited to fine carving than the heavy oaks, were used for furniture, including walnut, pear, maple, pine and cypress. In addition to painting, gilding

ornamentation and carving, inlay came much to be used. Intarsia was the term given such decoration at this period.

### Veneering Introduced Into France

Italian cabinetmakers crossed the Alps in the Sixteenth century and gave the industrial arts of France a tremendous stimulus. Francois I built and decorated his chateaux in the Italian style and furnished them with coffers, chairs, cabinets, armoires, tables and other articles copied after Italian models and veneered in a similar manner. French artists not only patterned after the Italians, but were sent to Italy to learn there the Italian manner of ornamentation and building. The most important method used by French cabinetmakers of the Renaissance period was the inlaying of exotic woods, also ebony, ivory and metal.

### In England

During the Renaissance period English artisans learned the art of veneering from the Italians and French. The art of inlaying with different colored woods became fashionable in England during the Sixteenth century.

During the reign of Elizabeth inlaid work continued in use for furniture and also was adapted for wall paneling. Bed heads and testers, tables, chest fronts and cabinets were inlaid.

### In Holland and Flanders

Early in the Sixteenth century Italian artistry was introduced into Holland and Flanders and native craftsmen were encouraged to adopt new forms. Marquetry decorations on furniture became popular. Highly colored veneerings were common in the better kinds of furniture. The national love for flowers has left its stamp in the tulip and other floral designs.

### In Spain

The Moors brought knowledge of intarsia to Spain, but they did not encourage the making of much domestic furniture. Charles V, however, introduced Italian ideas during his reign, and when Spain grew rich through discovery of America, the people grew more luxurious. Tables, as well as cabinets, were inlaid and veneered with ivory, ebony, bronze and silver. But superior workmanship has never been a salient quality of Spanish furniture.

## **Boulle Work**

The 72 years' reign of Louis XIV of France (1643-1715) contributed the innovation of Boulle work, a kind of veneer still outstanding in rich and novel furniture decoration. Boulle's achievement in veneering was a method which imposed thin brass into tortoise shell, with an occasional addition of ivory and enameled metal. In Boulle work, all parts of the marquetry are held down, by means of glue, to the bed, which is generally of oak. During the reign of Louis XV (1715-1774) the dark and heavy marquetry of tortoise-shell and metal, made famous during the preceding reign, was displaced by a marquetry of thin veneers of exotic woods. The superb classic of this period, the Bureau du Roi, is still preserved intact at the Louvre. It is the last word in the art of veneering. This most famous of all exhibits of plywood in furniture, cost the king a million francs and required nine years in the making. It is beautifully veneered with the rarest of fine woods in sumptuous designs and has perhaps the most delicate and perfect of all inlays. The construction is of plywood throughout—in principle and in fact.

## **Empire Style**

The Napoleonic days brought the Empire style to France. The finest mahogany crotch was the chief veneer employed by Empire cabinetmakers for veneering panels of doors and drawer fronts, to reproduce a rich and varied effect.

## **Veneer from Jacobean to the Present**

The Jacobean style was a development of the Tudor, which began in England in the time of Henry VIII and continued through the reign of Elizabeth. In Tudor and Stuart days almost everything was made of solid wood, and though the decoration varied, the whole of this solid wood was dependent rather on form than color for its effect. Later, when the monarchy was restored, furniture in which beauty and color were also considered factors began to appear and, naturally, veneering came into more general use.

Charles I encouraged the architect, Inigo Jones, through whom the pure classic forms of the later Italian Renaissance was introduced into England. The furniture produced

by cabinetmakers of this time differed from the Elizabethan in that it was more formal in effect and less extravagant in ornamental detail. A pair of cabinets of plywood construction belonging to Queen Henrietta Maria, wife of Charles I, had facing of laburnum, cut from long transverse sections of the tree, the lighter portions of the wood next the bark being retained as ornament, instead of being trimmed away, as is usual in the sectional veneer. Dyer says: "The true Jacobean style reached the height of its development during the reign of Charles I."

Restoration of the monarchy after Cromwell's death in 1659 was accompanied by entirely new forms of thought, for the new monarch had spent much time in France and Flanders, and numerous other exiles also, had absorbed the ideas of those countries. The new style employed walnut as veneer, with oak for the solid parts of the furniture.

### Saw, an Aid to Veneering

According to Helen Churchill Candee: "Two matters influenced greatly the furniture makers of the middle of the Seventeenth century. One was the invention of a saw that would divide a plank into as many thin sheets of wood as were desired. Naturally those who looked upon these thin sheets imagined new ways of using them for the embellishment of furniture. The second was the use of walnut instead of oak. By cunning skill, panels of walnut veneer were produced, where the grain of wood supplied the design." Macquoid pictures walnut tables, veneered and inlaid with marquetry, and chests of drawers of the same description, with veneered transverse sections of laburnum forming the oval bands surrounding the center. He pictures a table top of the whorled or "oyster shell" veneer introduced late in the Jacobean period. One highly finished table made of maple was a plain frame veneered with the knotted portions of the maple. Gate-leg tables were evolved in this period.

A change of taste about 1675 is noted by Macquoid, who says that the marquetry on small tables, clocks, etc., differed from early marquetry in the process of construction, the pattern, together with the background, being laid down as a veneer, and for this reason the shapes of inlaid furniture of this period are frequently sacrificed in order to obtain suitable flat surfaces.

## **Queen Anne Styles**

The Queen Anne styles are those prevailing in England during the reigns of William and Mary, Anne and part of the reign of George I. Dutch influence was strong. As marquetry was in high favor among the Dutch, it continued to be used on furniture produced in England under Holland workmen and inspiration. Exiled French workmen introduced the patterns of Boule. During the Dutch period of influence everything was veneered and form was subordinated to color. Piece after piece of plywood construction veneered in walnut have survived from this period, proving the enduring quality of plywood and veneer. Occasional tables were inlaid with pear, sycamore, maple and cherry.

## **Georgian Period**

In the Georgian period, which extends through the reign of George III in 1820, the styles of furniture changed with the rise to prominence of one cabinetmaker after another. In this period the names of master designers, Chippendale, Adam, Hepplewhite and Sheraton, distinguished the styles, rather than the name of ruling sovereigns. This epoch marks the decline of the use of walnut and established the general use of veneer and of plywood; also it marked the ascendancy of mahogany. This wood came into exclusive favor for solid work in the time of Thomas Chippendale.

## **Chippendale**

Chippendale's designs, being based on form rather than color, in the main required the extensive use of solid woods rather than veneers.

## **Adam Brothers**

Robert and James Adam designed and created furniture only insofar as they deemed it necessary to complete the harmony of their rooms, where they sought to make every appointment uniform in design.

## **Hepplewhite**

George Hepplewhite used veneers and the plywood principle of construction. The pieces he designed and built emphasized beauty of line.



## Sheraton

Thomas Sheraton is distinguished in the history of veneers and of plywood as "a master of inlay." In their book on Sheraton, Blake and Reveirs-Hopkins have illustrated from collections example after example showing his mastery of woods in the fine art of veneering. Satinwood, kingwood, sycamore and green-stained whitewood are all shown in combination with mahogany.

## Early American Furniture

After the Colonies had been established for a century, they began to seek self-expression along artistic lines in their furniture. They employed inlay and veneer and the use of plywood became accepted. Great numbers of sideboards were made after the designs of Shearer and Hepplewhite. Veneer of finely-grained mahogany on whitewood was not uncommon for the drawers, doors and tops. In others, marquetry of many colored woods took the place of inlay. Less common is inlay of dark and light woods in a block design, which appears on a paneled cupboard of the late Seventeenth century. On writing tables and secretaries of Sheraton design, satinwood veneer for drawers and panels was frequently applied to the mahogany. A novelty was the slate-top tea table, with a veneered border of walnut or applewood. Highboys of plywood construction, of walnut or maple veneer, are preserved from this century. Many have borders of herring-bone veneer. Drawer fronts were veneered with walnut, surrounded by herring-bone borders. Dressing tables of walnut veneer on whitewood were common.

The desk of George Washington, used from 1789 to 1797, is plywood built and the facings are of satinwood veneered. The desk on which Thomas Jefferson wrote the Declaration of Independence is veneered. A Hepplewhite sideboard of crotch mahogany veneer was dear to the domestic heart of Martha Washington, and the mahogany chest in her room was plywood built. A harpsichord which belonged to Nellie Custis, adopted daughter of Washington, is of mahogany veneer, inlaid with satinwood.

## Late Colonial Furniture

In late Colonial furniture, sometimes known as American Empire, wonderfully grained crotch mahogany veneer

was the usual material, applied in wide surfaces. Chairs, for the most part, were of veneered mahogany construction. Sofas showed plain surfaces of veneer. Tables grew heavier in design, but still used plywood tops and pedestals covered with fine veneers.

### **Duncan Phyfe**

Duncan Phyfe had a fondness for rich, finely grained woods, which is exhibited in his treatment of veneers and panels of plywood construction. By his use of broad surfaces of carefully selected woods, Phyfe demonstrated the truth that beautiful wood is in itself a decorative element.

### **Age of Machinery**

Soon after 1840 machinery began to be used in the making of furniture. As lumber was plentiful and cheap in America, makers of furniture neglected the artistic for something merely serviceable. But no artistic progress was made in Europe for several decades, one atrocious style after another being tried out on the public. Progress in the United States was retarded for approximately thirty years by the Civil War. As in other periods when art was at a low ebb, the art of veneering suffered a marked decline. But toward the end of the Nineteenth century American manufacturers awoke to the need for a standard of craftsmanship. Treasures of the Old World served as models for American designers. The natural beauty of wood was again conceded its true value, and veneers began to come back into favor. A new era may be said to have begun in the year of the World's Columbian Exposition in Chicago in 1893.

### **Simplicity of the Present**

Today simplicity and quiet elegance are the dominant notes in the best house furnishings. Manufacturers and dealers, through long experience, are thoroughly convinced that plywood construction is scientifically sound in principle and in fact. The public also has learned the great value of plywood and beauty of veneers.

Furniture designs of the present day cover a wide range, and no one style predominates the field for any length of time. However, no matter what the style, veneer is almost invariably used and the construction is plywood.

Ending their chapters on veneers and plywood in a volume of that title, E. Vernon Knight and Meinard Wulpi say: "Thus, in concluding as it were a review of furniture types from their origin in Ancient Egypt on down to the ultra-modern, one is forcibly impressed by a similarity of treatment throughout the ages. In practically every epoch, striking examples are manifested in which some form of veneer is employed as embellishment and in which plywood serves as the enduring principle of construction."

## CHAPTER II

### INLAY, INTARSIA AND MARQUETRY

#### Derivation of Terms

Inlay, intarsia and marquetry are three forms of veneering. Intarsia comes from the Latin word "interserere," to insert. It may be considered the practical equivalent of veneer, as in appearance the two are indistinguishable, although in instances intarsia was inserted in the smoothed surface of a block of wood rather than in a thin sheet of veneer. Marquetry comes from the French word "marqueter," to spot or mark. Much of the Italian intarsia is still to be seen in the beautiful old cathedrals of Florence, capital city of the Renaissance of the Fifteenth century. The art was highly cherished and transmitted from master to apprentice and from father to son, and the secrets of preparing certain colors were jealously guarded. F. Hamilton Jackson in his "Intarsia and Marquetry," writes: "The early mode of working intarsia in Italy, where it is more than 100 years more ancient than in any other country, was by sinking forms in the wood, according to a pre-arranged design, and then filling the hollows with pieces of differently colored woods."

Litchfield tells us: "In some of the early Italian intarsia the decoration was cut into the surface of the panels, piece by piece. As artists became more skillful, veneers were applied and the effect was heightened by burning with hot sand the parts requiring shading; and the lines caused by the thickness of the sawcuts were filled in with black wood or stained glue, to define the design more clearly."

## Inlaid Borders

Much of the modern inlay is made in narrow strips, of single and contrasting colors, glued together like very delicate mouldings. (See Fig. 1). These are set into doors, table tops, etc., after the suitable recess has been cut with a router. The routing machine is mounted on a flexible arm with a wide swing. The patterns for a router are frequently metal or thin wood. These strings or bands of inlay can be bent around curves as well as mitred and jointed for sharp angles. The skillful use of these borders adds much to the symmetry and grace of furniture and interior trim.

## Appliques, or Overlays

These are raised or relief panels or veneered shapes, frequently of burls or rare figured woods. They vary from  $\frac{1}{32}$  to  $\frac{1}{8}$  inch in thickness. Overlays are cut in many forms and shapes, frequently into circles, ovals, diamonds, stars, etc.

A veneered library table was made for one of the Medicis of Florence. The museums of Europe contain many examples of pieces of furniture from Italy during the Fourteenth to Sixteenth centuries, all showing wonderful skill in veneered work. A Florentine credenza of the Sixteenth century offers evidence of veneer work.

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## CHAPTER III

### PLYWOOD AND VENEERS

#### Veneer Defined

Plywood is a new term as yet unrecognized by the dictionaries and encyclopedias. As used by most woodworkers, however, it refers to more than one layer of wood (lumber or veneer) glued together over the whole of the adjacent surfaces.

The book "Veneers and Plywood", contains definitions for the subdivisions of the various kinds of plywood as follows:

Plywood, n. 1. plywud; 2. plywood. A compound wood with surfaces of veneer, usually built up in odd multiple



Fig. 1. Showing various marquetry borders of different colored woods.

plies of 3, 5, 7, 9, etc., the various plies being glued or cemented together under pressure.

Properly glued or cemented plywood joints are many times stronger and more resistant to stress and strain than is the fiber of solid wood.

Plywood standard 3-ply construction—the two outer layers or plies lie parallel, the inner layer or core being placed at right angle to the outer plies.

Plywood standard 5-ply construction—the two outer plies and the core or middle ply lie parallel, while the two additional plies, termed cross-bands or cross-binders, are placed at right angles to the outer three plies and parallel with each other; one cross-band being placed between the face ply and the core and the other placed between the back ply and the core. This construction is used to give strength, rigidity and balance, thus preventing warping, splitting or twisting of the finished plywood.

Standard plywood is used chiefly for the manufacture of household and office furniture, for piano cases, phonograph and radio cabinets, for paneling in interior decoration, etc.

Bent or shaped plywood—used principally for chairs and opera seats, bow-end beds, shaped drawer and cabinet fronts, tops and ends, sewing machine cabinet tops, etc.

Package plywood—used for merchandise packing and shipping cases, for shipping containers for metal or glass cans, jars, etc.

Waterproof plywood—is made using waterproof albumin glues; plywood may be made waterproof to the extent that hours of soaking and even boiling in water will not separate the glued plywood joints. Waterproofed plywood is extensively used in the manufacture of airplanes, refrigerators, automobile disc wheels, automobile coach bodies, outside door panels, stiles, rails and wherever a plywood product resistant to moisture is required.

### **Advantages of Plywood**

There are six fundamental reasons favoring the use of plywood. The first four reasons refer largely to cabinet work, where veneer is used flat.

First: Figured veneer is usually cut across the grain and is, therefore, fragile and needs a supporting foundation or base of a tougher and stronger wood.

Second: Irregular figure in veneer always requires balancing and matching for symmetrical and artistic results.

Third: Conservation demands that figured woods of substantial value should be used chiefly for artistic results and that the less valuable woods be used for purposes of strength.

Fourth: Unbalanced internal stresses in solid wood can be equalized and maintained in balance by properly applied veneer of two or more equal layers, either figured or plain.

Fifth: Curved, regular and irregular shapes, such as opera seats, grand piano rims, bow-end beds, etc., can be formed using thin sheets of veneer pressed and glued together in forms to produce the particular shape desired.

Sixth: The strength of wood increases greatly when multiple layers are glued together, particularly when laid at right angles one to the other, that is, a 5-ply piece of veneered wood, built up of five layers each of  $\frac{1}{20}$  inch thickness, is stronger than a piece of ordinary lumber 1 inch thick.

## Reasons for Plywood Advantages

The Encyclopedia Americana says that veneered work, when properly done, and shows that it is plywood, is the best and most effective work for the following reasons:

1. It is the only way to use the rare woods, such as "crotch" in satinwood and mahogany, "burls" in amboyna or walnut, and cross-grained but pretty wood which would only twist if used in the solid.

2. The layer of veneer tends to strengthen and preserve the wood on which it is laid.

3. Veneering gives the only opportunity for flat decoration in furniture, by using the grain of the wood for designs in panels and on wide surfaces.

4. The process needs more care and thought in the selection of wood, its preparation, application and finish, than is required in ordinary solid work.

## Action of Glue

Glue makes the strongest joint known between two pieces of wood, whether the pieces are sheets of veneer, or boards, or blocks. Glue (except special water resistant varieties) and wood are both unfavorably affected by moisture. Therefore, any well made piece of furniture should have its surfaces protected by some coating or finish, such as varnish, enamel, lacquer or paint. Even the under side of a table top or the back side of a cabinet door, and any

raw edge should be coated with some preparation that will effectively retard moisture changes. Any of the above finishes will do this, or shellac will serve the purpose. Solid wood and plywood should both be so finished, with all exposed pores filled, on both surfaces and all edges.

### **Atmospheric Action on Plywood and Solid Wood**

For comparison, it may be assumed that two table tops, one of plywood (5-ply) and one of solid wood, have been insufficiently finished, with the under side entirely unfinished and the edges improperly filled. These tops, or the pieces of furniture of which they are a part, are stored in a damp warehouse. What may be expected to happen to each?

The unfinished ends of the solid top, as well as the similarly raw ends of the plywood top, will absorb atmospheric moisture and endeavor to expand. The solid top will have no resistance to offer to those expansion stresses, and will eventually warp and curl, and probably check. Glued joints will open up and wood will tear away from the glue under so great a stress and so narrow a surface of glue.

The plywood top, however, has four strata, or layers of glue, one strata within  $\frac{1}{16}$  inch or less of each surface, and atmospheric moisture will not so easily penetrate these combined wood and glue strata. The expansion stress in  $\frac{1}{16}$  veneer (produced by surface moisture absorption) will be abundantly counterbalanced by the remaining  $\frac{3}{4}$  inch of relatively protected lumber and will be practically impotent. The moisture absorbed by the ends of the core wood will produce expansion stresses, but two strata of glue and two sheets of veneer above and two of each below will again counterbalance the expansion stress.

### **Strength of Glue Joints**

Will atmospheric moisture at ordinary temperatures weaken the ordinary glue joints between the veneer? This is just possible, but in many years of observation no such case is known to have occurred. Well set glue that has made a tight joint will tear the wood before it will let go. In other words, a properly made glue joint is much stronger than the wood.

If the plywood is immersed in water, or placed where water can be drawn into it by capillary action, or left



exposed to the weather, the glue joints will open, of course, and the veneer will become loose. Under like conditions, however, a solid top will absorb just as much, or more, moisture in the form of water, and will be as badly wrecked as the plywood.

## **Fragility of Veneer**

Many of the most beautiful figures in wood are caused by cutting across the twisted, wavy, curly, irregular or otherwise distorted fibers formed by a butt, stump, root, crotch, burl, or some abnormality. Solid wood, one or two inches thick, from such locations in the tree, would warp, curl or check, under manufacturing and service conditions, to such an extent as to ruin in a short time the resulting piece of furniture.

Much of the figure is caused by end or slashing grain, which in solid wood rarely takes an even color nor readily acquires a smooth polish, since end grain is more porous, absorbing more stain, and will not work down into a surface as attractive and durable as side grain. Thin sheets cut into veneer from such end grain wood are fragile and easily broken; in fact, they should be stored and manufactured in a partly moist condition to avoid damage in handling. When carefully cut or sliced into thin sheets and glued to a core, this tendency to distort can be counterbalanced and overcome.

The stripe or "ribbon" effect in mahogany is a manifestation of the softer and more feathery portion, alternating with the plainer and harder portions between the stripes, and is correspondingly more difficult to finish. The stripe or "streak" in walnut and gum, respectively, is either a growth-ring or growth effect from localized pigment. Mottles and "fiddlebacks" are still other indications of wavy grain.

## **The Core as a Foundation**

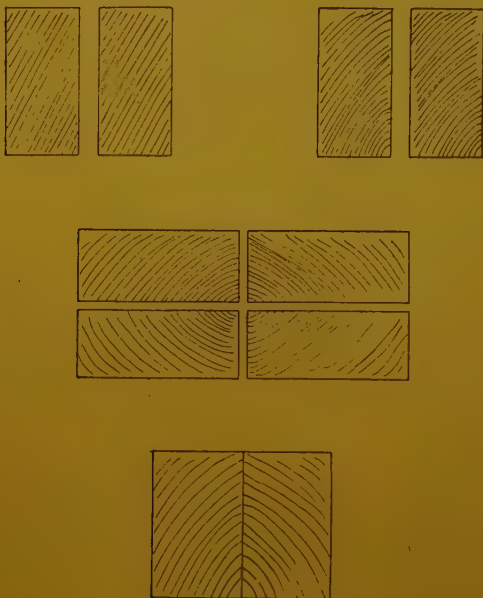
The designer and manufacturer who would obtain the most desirable effects from nature's choicest growths of figured wood are obliged, because of practical consideration, to utilize thin sheets of the highly figured stock and mount them on a base of dependable wood that will hold its shape under the vicissitudes of changing climates and hard use, if not under actual abuse. A solid base under a figured sheet (end grain partially exposed) becomes a reinforce-

ment to the fragile veneer and permits the satisfactory finish and polish that is so necessary to high grade results.

These bases are called cores, or centers, and may be of veneer, lumber or even of other material of similar character. Frequently, as in 5-ply, a sheet of plain veneer is interposed between figured face veneer and core; this is called a cross-band, or crossing, since its grain is normally crosswise, or at right angles, to the prevailing grain of face veneer and core. Face veneer and core customarily have parallel grain.

### Balanced and Symmetrical Effects

Nature usually produces wood figure in irregular shapes and random effects, and only in a few instances, such as



**Fig. 2.** Showing optical illusions produced by angling figure. Center sketch shows how figure can be matched, and lower sketch shows balanced matching.

curly, bird's-eye and stripe woods, can the natural figure be used "as is." In fact, a flitch or figured wood usually appears to the uninitiated most unattractive and lacking in artistic possibilities. When used simply, without matching, the result is likely to be grotesque. Sloping, slanting or "off center" figure, when used alone, will often produce an optical illusion of being "out of square," irregular or otherwise indicative of careless craftsmanship. (See Fig. 2.) Two adjacent sheets will have practically the same pattern, and if one is reversed and the two laid edge to edge it will give a matched or balanced appearance that will enhance the beauty of the single piece and often turn the distorted pattern into an artistic result.

In the case of quarter-sawed oak, the strips are usually narrow, and often two, four or six strips are needed to make the required widths. Every other strip is reversed and the result is two or three pairs of matched pieces, arranged in series. A little methodical planning will produce balanced results, whether with large "splash" oak figure or modest "herring bone" pattern. Other woods with pronounced stripe are sometimes combined into angling or "zebra" patterns.

## **Side and End Matching**

The side matching is done by planing or "jointing" the edges of the veneer strips and fastening the neighboring pieces together by means of gummed cloth or paper (which is removed after the assembled sheets are glued to their base or core) leaving a joint that is perceptible only as a change of direction in the grain of the wood.

In end matching, two or four adjacent sheets of veneer, having the same pattern, or figure, are jointed and taped together at their ends (or at both ends and sides) so as to produce desirable and artistic effects. Sheets of highly figured stump or crotch veneer in the hands of an expert can be transformed into curious and wonderful designs. Four-piece butt effect is always popular and is most frequently found in plywood used for furniture, pianos, phonographs, radios and interior paneling.

It must be apparent that adjacent boards of commercial thicknesses would not have sufficiently similar figure to permit the matched and balanced patterns described.

The use of figured woods in segmental arrangements, borders, decorations, inlays or appliques is conspicuously the vogue in plywood workmanship. The ramifications

of assembling similar and contrasting woods lead into marquetry, parquetry and inlaid work, where various colors and shades of figured woods are combined for border, medallion, corner and diamond pattern work. Only veneers, and never solid woods, lend themselves to such a wide variety of combinations.

### Relative Cost of Veneered and Solid Tops

It is popularly supposed that a veneered or plywood table top with a veneer face is cheaper and inferior in quality to solid wood. An analysis of costs will clarify this situation.

The best quality of logs invariably are cut into veneer, the poorest are sawed into lumber. The price of lumber from a veneer grade log would be prohibitive, and no one would take as a gift the veneer produced from a log suitable only for lumber. An example may make this clearer:

Sheets of veneer  $\frac{1}{24}$  inch thick, and at 2 cents per square foot, represent a fair market price. The equivalent value of lumber would be 48 cents per square foot, but it takes  $1\frac{1}{8}$  inches of log to allow for the shrinkage and saw kerf necessary to produce a board 1 inch thick, which increases this equivalent value to 54. This means \$540 per 1,000 feet of lumber, and is obviously prohibitive. As a matter of fact, a 2-cent veneer market about corresponds to a \$200 per 1,000 feet lumber market, considering the normal classification into logs suitable for veneer and lumber.

Analysis of the dollar spent for plywood tops of standard grade, and another dollar spent for solid tops of as nearly a similar grade as possible, shows that each dollar would purchase practically the same amount of superficial area of tops, but the division into labor and material would show marked variation. The figure of the veneered top would be more decorative than that of the solid top, yet both would be genuine.

The component parts of the dollar spent for solid tops would be 85 per cent for material, 10 per cent for labor and 5 per cent for overhead. The component parts of the dollar spent for plywood tops would show 49 per cent for materials, divided as follows: core, 25 per cent; face, 11 per cent; crossbands, 6 per cent; glue, 4 per cent, and back, 3 per cent; it would show 34 per cent for labor and 17 per cent for overhead.

Since the plywood fabrication means a better arrange-

ment of wood for balancing internal stresses and strains, as well as for the utilization of face veneer, it seems abundantly to justify its cost. What is saved in material is expended in workmanship, but the result is better structurally and possesses a more highly figured surface.

### Comparisons of Quantity

A relatively small number of tops may be made economically from the lumber produced from one particular log, while the veneer produced from a similar log is sufficient to cover the surface of enough plywood to make several hundred tops of similar size.

### Shrinkage of Woods

Every piece of wood normally will shrink and swell under varying conditions of treatment, in different climatic surroundings, and according to its actual moisture content.

The possible amount of shrinkage between green and dry wood of the more common species is considerable, as shown in the following table (averages are shown only):

Wood	Original moisture content when green	Per cent shrinkage from green to dry	Width inches lost by shrinkage width in one foot
Ash, white.....	40%	5%	.6 in.
Basswood .....	100	7	.84
Birch, yellow....	65	8	.96
Fir, Douglas....	42	6	.72
Gum, red.....	71	9	1.08
Hemlock .....	34	4	.48
Maple, hard....	62	8	.96
Oak, red.....	57	8	.96
Oak, white.....	60	9	1.08
Pine, white.....	36	5	.60
Pine, yellow....	50	8	.96
Spruce .....	35	6	.72

## CHAPTER IV

### PLYWOOD AND VENEER CONSTRUCTION

#### Why Wood Products Are Dried

Permanency of size and shape is the principal reason for the proper drying of all wood products. Wood is,

however, decidedly hygroscopic and porous, and its surface readily absorbs or evaporates moisture, which moisture transference is accompanied by at least a tendency to swell and shrink. If all the pores or openings of a piece of wood could be sealed or otherwise filled against absorption, we could hope to achieve an unchanging and unchangeable size and shape in a wood object, but this is not practicable.

### Internal Stresses

Lumber, when kiln dried and suitable for cabinet work, is porous and easily affected by moisture or heat, or both. If two boards are laid side on the ground in the sun for a few days, the edges will warp, i.e., the under side, absorbing moisture from the ground, becomes wider than the upper side, kept dry by the sun. (See Fig. 3). If the

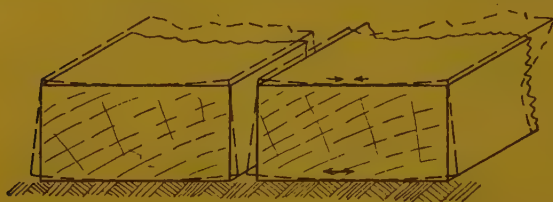


Fig. 3. Showing unbalanced stresses, where boards have upper side protected from moisture absorption, while under side is free to absorb.

two boards are both turned over, a few days more exposure to the sun will reverse the moisture conditions in the boards and cause the edges to warp back to normal and beyond with edges curled up in opposite directions. This is an exaggerated example of what may happen to a solid table top, made of two boards, varnished on upper side and unfinished underneath, where it may be exposed to damp atmospheric conditions. Normal, unexaggerated stresses show the same tendency. In other words, boards have internal strains and stresses which may be easily unbalanced, and when out of balance will cause warp, wind or twist; if the adhesion of the minute fibers is strained to the point of separation, the result is checking.

A board well dried and prepared for manufacturing, will stay flat only so long as the stresses are maintained in balance. The problem, therefore, is to keep the in-

ternal stresses permanently balanced. In solid wood this is difficult, if not impossible, and nearly all antique solid furniture shows seriously warped parts, with corresponding open joints.

## Gluing Insures Internal Balance

One of the chief reasons for gluing up plywood, consisting of several layers of veneer or lumber, is to secure this permanent internal balance. (Fig. 4) shows the different layers separated so that the reader can more readily visualize the construction of a 5-ply top using a lumber core, and 3-ply panel using a thick veneer core.

The grain of the face and back veneers of the 5-ply are both parallel with the grain of the core, and the

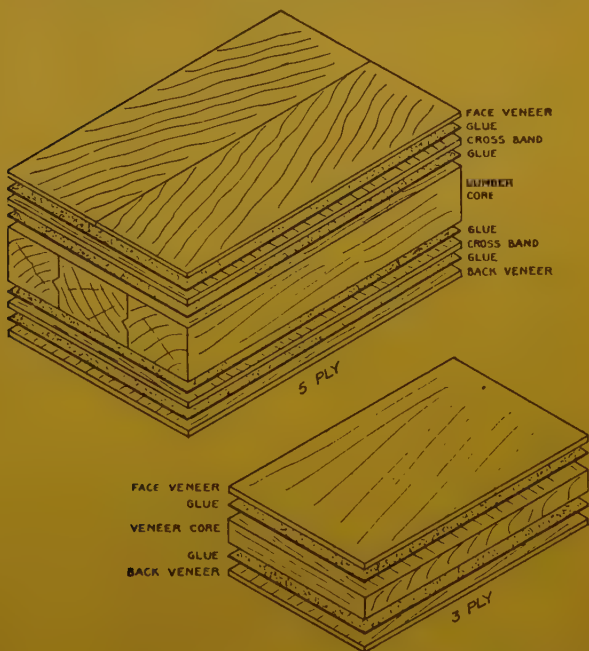


Fig. 4. Showing construction of 5-ply and 3-ply, giving an idea of how internal stresses in all strata are equalized.

intermediate crossings have their grain at right angles thereto. When this piece of plywood is assembled, or laid up, pressed together with glue into a solid mass, and so dried, the result will be a rigid unit of the whole in which the right angle grain of the crossings and the four glue layers produce a permanent "set" or balanced condition of internal strains and stresses. A similarly balanced result is achieved in the 3-ply, where the veneer core alone furnishes the right angle stabilizing effect.

### Face Veneers

The face veneer in 5-ply is usually from  $\frac{1}{32}$  to  $\frac{1}{16}$  inch thick, backed up by a cross veneer; and the face and crossing glued to a core of suitable lumber that is strong, holds glue and does not readily distort, such as chestnut or poplar. The resistance to distortion rests chiefly in the core, and the protective layers on both sides. The back veneer and crossing must be of the same growth, thickness and quality as the corresponding face items, so as to equalize the stresses and strains and create a perfect balance. The entire five plies may be glued together at one operation.

In 3-ply, the face veneers are usually only slightly figured and may be of any desired thickness, while the core is usually of a heavier veneer and there are only two layers of glue. Faces and backs should be of equal thickness and the entire gluing done in one operation.

When properly filled, stained and finished, well-built plywood will be "in balance" and always stay flat, will resist atmospheric changes, be equally strong in all directions (i.e., cannot split) and will give a permanence to furniture.

### Veneered Edges

The design and finish of many pieces of furniture can be improved by covering exposed end and edge wood with veneer. To avoid the dark and characterless effects of the ordinary finishes on the ends and sides of table tops, a strip of veneer glued on each end and edge permits a uniform finish on all four edges. If the table tops are of the round or oval shape, the edge veneer can be carried entirely around in one piece.

Sometimes an edge veneer, with horizontal direction of grain, is not satisfactory. The application of an edge



veneer with vertical grain is not quite so easy, but in certain instances is well worth the extra cost.

A similar use is on the fronts of bureaus and cases, where it is advantageous to have rails or separator strips, between drawers or doors, faced with a vertical grain veneer. The part to which this veneer is glued must obviously be designed for strength and usually has horizontal grain. A similar effect may be frequently noted on the front of arms and feet of an upright piano case.

## **Curved Shapes of Veneers**

Thin sheets of veneer are pliable enough to bend around many curved and irregular shapes. Three, five or more sheets may be glued and pressed together in a form or mould, producing, when dried, plywood with a permanent or "set" shape.

The "swelled front" on bureaus or vanity drawers is an instance of the use of veneer to cover curved surfaces made of built-up, jointed and shaped lumber. Sideboard and cupboard doors are frequently so made. The sides of phonograph cases are sometimes convex, requiring veneered surfaces. Rounded end sewing-cabinets and kidney-shaped desks require extensive use of such curved exterior veneer. Table pedestals of columnar form are veneered.

Pews, settees and individual opera chairs are usually made of three to five plies of veneer. Plywood is often used for school desks, recitation room writing-arm chairs, auditorium seats, portable folding chairs, etc. Railroad station and waiting room settees are usually made in one continuous curved piece of plywood, shaped to accommodate the human form. (See Fig 5.)

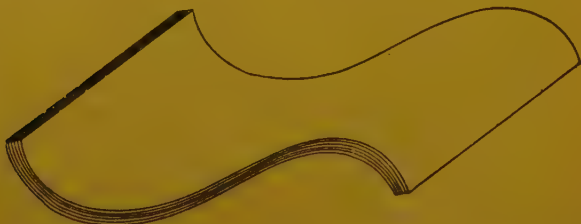


Fig. 5. Showing 5-ply, all-veneer opera seat, with face core and back grain from rear to front and crossings at right angles thereto.

## CHAPTER V

### HOW VENEERS ARE MADE

#### **Ancient Methods of Producing Veneers**

It is presumed that the veneers of the ancients and of all nations up to the Late Jacobean period were produced by hand-sawing wood as thin as this operation would permit, followed by a hewing, shaving, adzing or planing process to the required degree of thinness. There is some evidence to show that certain veneer craftsmen attached the heavier sheets of veneer to the base by the use of glue and plugs, and then worked these thicker sheets down to the desired thinness.

#### **Machine Saws and Slicers**

Before the invention of the circular saw about 1805, all sawing was done by means of the hand or stroke saw. With the circular saw available, the first type of slicing or shaving machine was developed for cutting thick shavings of wood that were used for boxes and for ornamental purposes. This machine was a large power-drawn plane, operated by means of the steam engine, but this method of making slices of veneer was not extensively used. The prototype of the modern circular saw was found to destroy, in sawdust, a thickness considerably greater than the resulting veneer, and this led eventually to the segment saw, which consists of a series of thin segmental toothed saw sections bolted around a center disc or hub.

The sawing process of producing veneer was supplanted in the latter part of the Nineteenth century by the slicer, a knife across which a log is drawn, producing a sheer cut and resulting in a shaved sheet of thin lumber. This slicer was the original method and is still used for cutting the most valuable veneers where figure and texture are important.

The most recently developed method of veneer cutting is the rotary lathe, producing sheets of substantial width and length, peeled off cylindrically from a log in one continuous piece. This has now become the chief means of veneer production in all except figured woods.

# Modern Veneer Manufacturing Methods

There are four ways of converting logs into veneer and all are in use at the present time. (See Figs. 6, 7, 8, and 9.)

Rotary cutting is first according to volume of production, since most plain veneers are so made, as well as some fig-

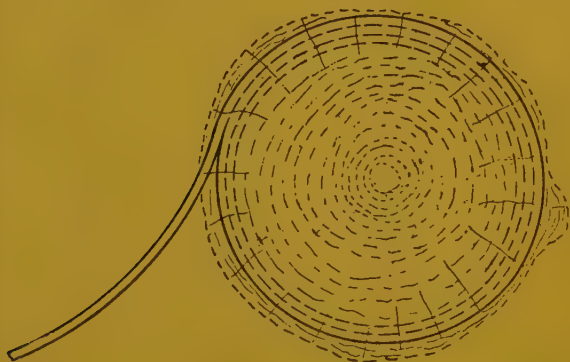


Fig. 6. Showing how rotary veneer is cut from a log or bolt. after the uneven exterior has been cut away.

ured woods. The veneer is spirally unrolled from the log, somewhat as paper is unwound from a roll. Logs never grow perfectly symmetrical, so that a sheet of rotary veneer may show parts of several growth rings. Hence, rotary cutting shows large, "sprawly" grain, as in oak, ash and fir.

Slicing veneer is the standard cutting practice for mahogany and most other figured woods. The sheets of veneer are sheared from the flat surface of a hewn log or sawn flitch. These cuts extend across many or few growth rings, according to distance from center of log. Sliced veneer is sometimes cut radially (quartered) but is usually random cut.

Sawing veneer with segment saws, although the earliest modern method, is chiefly used for quartered oak. The saw kerf waste is equivalent to the thickness converted into veneer, hence the method is not economical and is applied only to woods and products that cannot be cut advantageously by any other method.

Half round cutting is done on a lathe by the use of a "stay log," an eccentric device that permits rotary cutting on a wider sweep, or with greater diameter, than when the log is mounted on usual lathe centers. Circular sheets, instead of cutting from outside of log towards heart, may be cut from heart towards the outside.

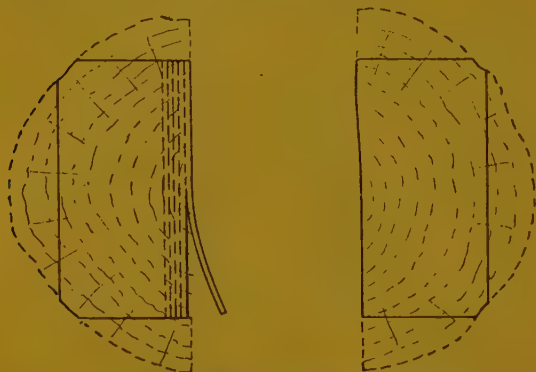


Fig. 7. Showing how sheets are sliced from hewn (or sawed) log, sometimes halved and quartered.

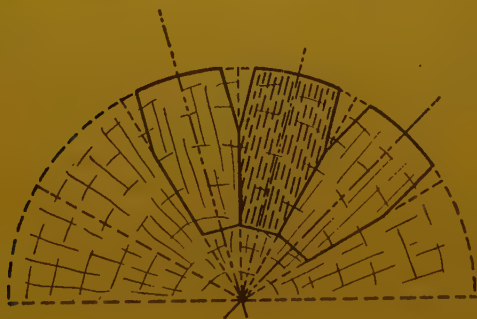


Fig. 8. Quarter-sawed veneer is made from segmental flitches and only one sheet of veneer in each flitch is genuinely quartered. The remaining sheets have enough figure to grade as "quartered."

# Segment Saw for Cutting Veneers

The usual design of segment saw consists of a large cast hub to which many segmental sections of a saw are bolted. This permits the use of a thinner saw steel and less "set," since succeeding sheets of veneer are thin enough to be

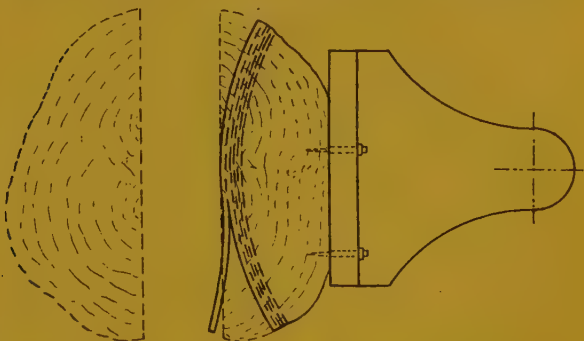


Fig. 9. One method of cutting "half-round," showing how a crotch can be halved (on a saw) and cut into similar adjacent sheets to reveal the beauties of heart crotch figure.

bent away from tapering hub and thus obtain necessary clearances. The saw revolves towards the log and the face of the saw against the log is flat. The log or "flitch" to be sawed is bolted or clamped to a traveling carriage mounted on metal ways. This carriage not only has reversible lengthwise travel but has, as well, a screw adjustment towards and away from the saw, usually graduated in fractions or decimals of an inch. It is customary to move the flitch away from the saw a trifle for clearance on the return, or non-sawing stroke. The segments of the saw must be carefully mounted, so that the saw will run true.

## The Veneer Slicer

The first knife slicing or shearing machine was in the form of a gigantic plane drawn by means of a steam engine. This plane produced shavings that could be used for decorative purposes, but the device was lacking in ability to cut cross or end-grain satisfactorily without

splitting or breaking. From this large plane developed a shearing knife, properly mounted and drawn against the surface of the log to be converted into veneer. Such a knife cutting process obviously produced no sawdust and converted the whole log into veneer, without saw kerf, a substantial saving.

In the veneer slicer the hewn or sawn log is bolted to a base and the log is drawn diagonally across a sharp knife, producing a shearing motion. This motion cuts cross or end-grain with a minimum of splitting and tearing and gives a clean cut, particularly in cross-grained portions of figured, crotch, stump and burl logs, where much of the slicing must be at sharp angle against the grain of the wood.

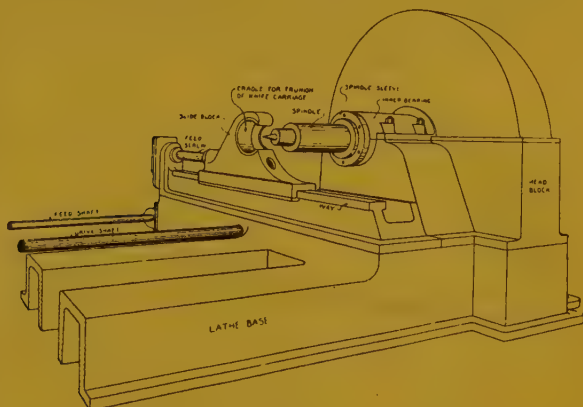
In order to secure the desired thickness of veneer, the knife and the log are fed towards each other by means of a mechanical screw or ratchet which operates only between cuts. The adjacent sheets produced are almost identical in character, in figure and in color. Slicing is seldom used for greater thickness than  $\frac{1}{12}$  of an inch. Not over 5 per cent of commercial veneers are produced by this method. It is inevitable, however, that the sheets of veneer as they fall from the knife are somewhat bent and the surface grain slightly checked by this bending. Sliced veneer has only a little open grain due to the shear cutting and clearances for knife movement and is, therefore, nearly "tight cut."

### **The Rotary Lathe**

The rotary lathe is the method employed to produce approximately 90 per cent of the veneers today. Since the process involves the mounting of each log in a lathe and revolving the log against a cutting knife, the rotary cutting of veneer must be done with little regard for the figure of the wood. Therefore this cutting method seldom is employed in other than commercial grades of plain wood. However, bird's-eye maple, etc., in which the figure of bird's-eye consists of radial blemishes, are most pleasing when rotary cut. Some of the curly figured maples also are lathe or rotary cut.

The modern rotary cutting machine (Figs. 10 and 11) consists of a massive, sturdy lathe, with centers about 6 inches in diameter. These centers, operated lengthwise by screw feeds, are forced into the ends of each log, to grip firmly for rotating. The log is revolved against a

taper-edged knife, and the resulting veneer emerges between an adjustable pressure bar and the cutting edge of the knife, flowing out in a wide sheet. The length, with



**Fig. 10. Diagrammatic view of veneer cutting lathe, without knife carriage or log, showing details of feed and drive mechanism.**

(Courtesy Merritt Engineers and Sales Co.)

the grain, is determined by two spurs or knives forced into the log surface, in advance of the cutting knife.

The heaviest or thickest veneers that can be cut on a lathe are  $\frac{5}{16}$ , and sometimes  $\frac{3}{8}$  inch, but the opened grain and checking in such thicknesses is likely to be a serious disadvantage, except where the heavy veneers are used for cores and are concealed from view.

The rotary method is a rapid production process, and the cheapest and most expeditious. But it is more of a strain on the fiber of the wood than either sawing or slicing, since the sheet that was wrapped around the log is straightened out flat and dried in that condition. The outside surface of the veneer will be under compression strain, and the inside under tension. Cutting checks result. A thin veneer, with almost imperceptible checks, is said to be "tight cut," whereas a thick veneer ( $\frac{1}{8}$  inch and up) will have checks apparent to any careful observer, and is said to be "loose cut."

## Half Round Stay Log Stay Log

The half round stay log is a semi-circular wide, sweep, off-center cutting device, attached to an ordinary veneer lathe (Figs. 12 and 13). The stay log, as an attachment, is usually adjustable for the sweeps or diameter of cuts

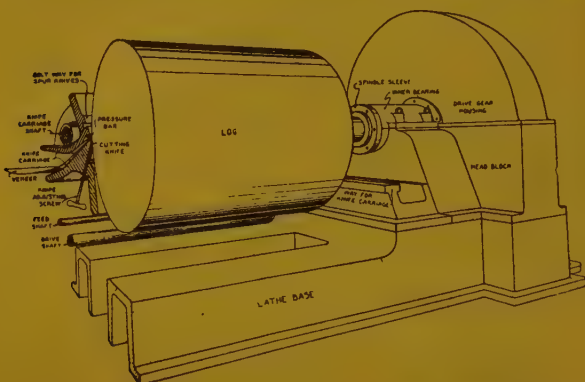


Fig. 11. Same view as last of veneer cutting lathe, but with knife carriage in place, shown at left; and log mounted for cutting veneer.

(Courtesy Merritt Engineers and Sales Co.)

desired to be made. Practically speaking, the veneers cut on a stay log are the same as if flitches were bolted to the outside of a large cylinder; in fact, a stay log attachment is a segment of such a cylinder. Not only can the diameter of the cut be increased within the capacity of the stay log, but the cuts can be reversed, so that veneer may be cut from the heart towards the outside, rather than the normal rotary cut from outside to heart.

This process is used chiefly on walnut, as it permits opening a butt or crotch in a way to reveal the finest figure, and allows the veneer so as to obtain the choicest shadings of end and slanting grain.

## Standard Thicknesses of Veneers

The use for and thickness of veneers in their three principal classifications are as follows:



## Special

This type is used for airplane work and engineering requirements, cigar box coverings and linings, and veneer to be mounted on paper and cardboard. These thicknesses

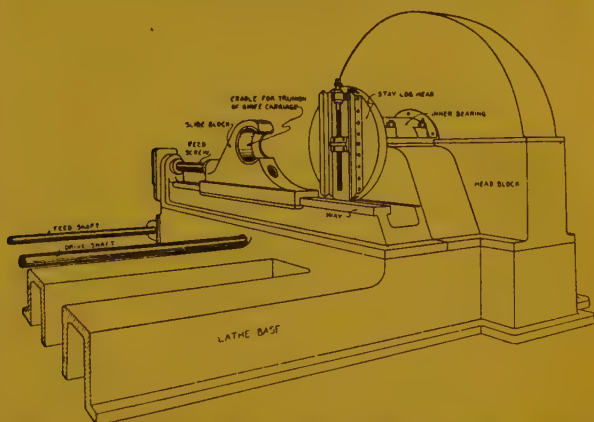


Fig. 12. Diagrammatic view of veneer cutting lathe, with spindle removed and stay log head substitutes.

(Courtesy Merritt Engineers and Sales Co.)

are fragile and in most cases are laid on sheets or rolls of paper (for support) when cut.

$\frac{1}{100}$ inch	$\frac{1}{80}$ inch	$\frac{1}{72}$ inch
$\frac{1}{60}$ inch	$\frac{1}{50}$ inch	$\frac{1}{40}$ inch

## Figured Veneers

These are mostly face stocks where character and beauty of figure are desired, and are usually produced on a veneer slicer and kept in bundles or packages in exact sequence as cut from log or flitch. Quarter-sawed oak veneer is usually  $\frac{1}{20}$  inch, and sometimes  $\frac{1}{16}$  inch thick, as saw marks must be removed by sanding to a smooth surface. Occasionally  $\frac{1}{8}$  inch veneers are sliced, as for grand piano rim stock, but this is the exception.

$\frac{1}{32}$ inch	$\frac{1}{30}$ inch	$\frac{1}{28}$ inch
$\frac{1}{24}$ inch	$\frac{1}{20}$ inch	$\frac{1}{16}$ inch

## Commercial Veneers

In the main, these are produced by rotary cutting on a lathe, in sheets of various sizes. It is seldom that much attention is paid to similarity of figure, and usually such veneers from so-called "plain" woods are for commercial work and sold by aggregate footage areas. Plain-sawed

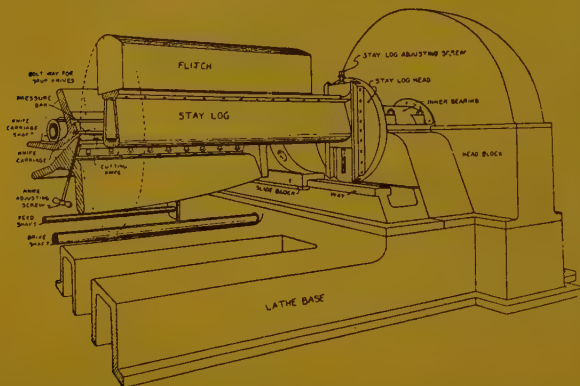


Fig. 13. Same view as last of veneer cutting lathe, with stay log attachment showing flitch and knife carriage in position for cutting veneer.

(Courtesy Merritt Engineers and Sales Co.)

veneers may be classified within this range when not produced to secure figure, but to obtain unusual tightness of grain, as in piano pin or wrest plank of maple.

$\frac{1}{24}$ inch	$\frac{1}{20}$ inch	$\frac{1}{16}$ inch	$\frac{1}{12}$ inch
$\frac{1}{10}$ inch	$\frac{1}{9}$ inch	$\frac{1}{8}$ inch	$\frac{1}{7}$ inch
$\frac{1}{6}$ inch	$\frac{3}{16}$ inch	$\frac{1}{4}$ inch	$\frac{5}{16}$ inch

## Shrinkage in Thickness of Veneers

All wet wood shrinks as it dries. Nearly all logs are steamed or soaked to make the wood easy to cut and to produce veneers that are pliable and as free as possible from brittleness during the manufacturing processes. The thickness of veneers may be reduced from 6 to 10 per cent by shrinkage, or to slightly less than the cut dimension. Well-made veneer should be cut a trifle "strong"

for thickness. It is good practice to set knives to  $\frac{1}{30}$  inch to produce  $\frac{1}{32}$  inch stock;  $\frac{1}{26}$  for  $\frac{1}{28}$  inch;  $\frac{1}{22}$  for  $\frac{1}{24}$  inch;  $\frac{1}{18}$  for  $\frac{1}{20}$  inch;  $\frac{1}{15}$  for  $\frac{1}{16}$  inch, etc. Lathes and slicers are provided with suitable gear facilities to produce almost every fractional thickness that may be desired.

## CHAPTER VI

### WOODS USED FOR VENEERS

#### Walnut

The most used walnut veneers are the stripe and heart sliced, (See Fig. 14) rotary cut, half round, quarter sliced (all plain and figured) and stump wood. (See Fig. 15). The latter is valued exclusively for its figure and its suitability to four-piece and butt-joint matching. It is also used for applique or overlay. Circassian walnut has sharp color contrasts, with unusually unique figure.

#### Mahogany

Genuine mahogany is one of the choicest and most popular cabinet woods, because of its easy cutting, texture, durability, color and the wide range of its artistic figure. Among its varieties of figure are the well-known stripe or "ribbon," mottle, ripple, blister and crotch. (See Figs. 16 and 17). Mahogany is predominantly a furniture and piano wood, but it also is used for fine interior woodwork.

#### Oak

There are many species of American oaks, those most used in veneer being white and red. The white oak is cut into both quarter-sawed and rotary veneer. Plain-sawed veneer is used especially for plywood to match the grain of solid lumber. Red oak does not show as characteristic and desirable a figure in quarter-sawing and is not as highly regarded for veneer work. It yields a useful but a more fragile rotary veneer than does white oak. Both plain and quartered white and red oak take an excellent finish. Live oak is not a veneer wood.

#### Birch

This is one of the principal northern hardwoods, noted for its attractive grain figure, its density, hardness and susceptibility to high finish. Its chief veneer uses are for



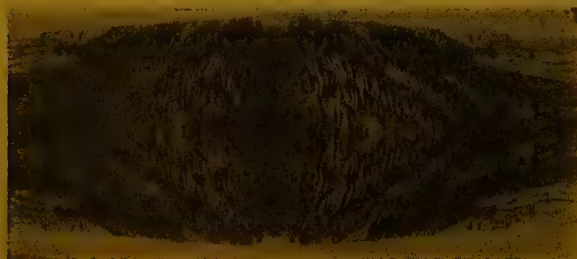
**Fig. 14.** American black walnut, sliced veneer, showing stripe and cross figure.

(Courtesy Penrod Walnut and Veneer Co.)

house trim, furniture and bent wood seating. Yellow and red birch are the most popular varieties for veneer and plywood for cabinet work and furniture.

### Gum

Over one-third of all veneer cut is produced from various members of the gum family. (See Figs. 18 and 19). The present commercial supply is cut largely from three species, sweet, tupelo and black gum. Gum is easy to work, and is used extensively for furniture and interior trim. It takes an excellent finish in its own natural color, as well as in darker browns and reddish colors.



**Fig. 15.** Highly figured stump wood veneer, showing typical four-piece butt-matched effect. Veneer half-round cut on stay log. American black walnut.

(Courtesy American Walnut Manufacturers' Association)



Fig. 16. Sliced mahogany veneer, showing blister figure.  
(Courtesy Mahogany Association)

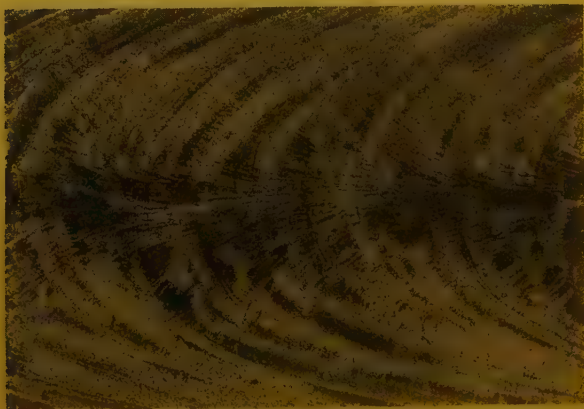


Fig. 17. Crotch mahogany veneer, showing possibilities for wonderful matched design.  
(Courtesy Mahogany Association)

## Maple

As a veneer wood, hard maple has little figure, except in unique and somewhat mysterious bird's-eye growth. (See Figs. 20 and 21). This miniature swirl grows radially, and when uniformly distributed in light colored wood, makes an attractive and decidedly valuable veneer. Maple veneer is the hardest and most dense of the common woods, and is sawed or rotary cut into  $\frac{1}{8}$ ,  $\frac{3}{16}$ ,  $\frac{1}{4}$  and sometimes  $\frac{5}{16}$  inch veneers to be glued up into 3-ply and 5-ply pin planks for pianos. Thinner maple veneer is used to some extent in furniture, where any plain wood will serve, and is also used for laminated insulating rings in electrical equipment. The scarce and elusive curly figure is found in the soft maple sap, and when uniform and clear for color, produces some of the most valuable veneers. (See Fig. 22). Otherwise the better grades of soft maple veneer are used for cross-banding.

## Poplar

The poplar tree supplies, in its several species, the standard veneer for cross-bands. The color of the veneer varies from a cloudy white to a yellowish brown. An occasional freak growth provides a blistered poplar veneer, used for overlay and as an applique. Rotary cut poplar veneer can be cut without cooking, dries quickly without checks or wrinkles and makes strong glue joints. Poplar lumber is a favorite for plywood cores.

## Ash

White ash is essentially a wood of strength and toughness like hickory. Brown ash, from which veneer is usually made, does not have the strength and toughness of white ash, but is more desirable for cutting into veneers because of the ostentatious appearance of the grain character. It is often used for showcases and show window panel (See Fig. 23) trim in wainscoting. The veneer is usually produced by rotary cutting. Ash burls are protruding growths, with closely twisted and interlaced figure, and are used chiefly for appliques or overlays.

## Elm

Elm has been the veneer wood of the basket, barrel and hoop makers, where toughness was the one and only essential. Gray elm, however, makes a pleasing veneer surface

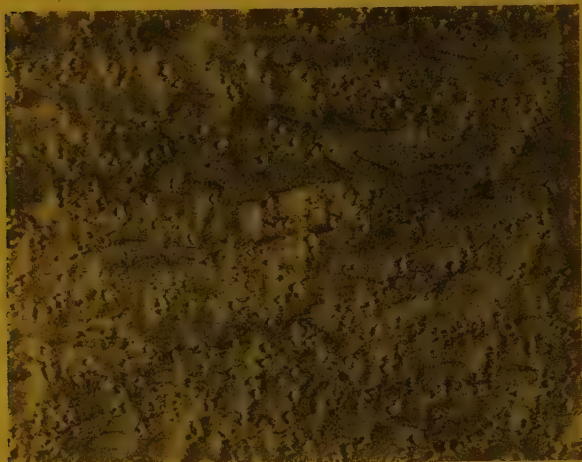


Fig. 18. Showing rotary cut red gum veneer, the heart of the sweet gum tree. (Courtesy New Albany Veneering Co.)

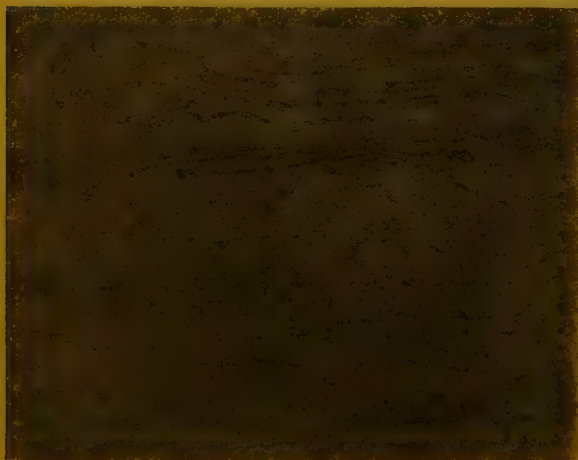


Fig. 19. Quarter sliced figured gum veneer, matched for decorative design. (Courtesy Louisville Veneer Mills)





**Fig. 20. Rotary cut bird's-eye maple veneer.**  
(Courtesy Bird's Eye Veneer Co.)



**Fig. 21. Rotary cut maple veneer.**  
(Courtesy Wisconsin Veneer Co.)



for interior trim, not unlike the ash in appearance. Because of its toughness, elm veneer is used as a wrapper for leather. (See Fig. 24).

## Beech

This is one of the harder woods. Its use as a veneer is largely confined to baskets and shooks.

## Sycamore

Sycamore lumber, when quarter-sawed, is in considerable demand for use as drawer sides. Quarter-sawed or sliced sycamore veneer has a small flake or splash effect, quite uniform in distribution, that makes it popular for plywood drawer bottoms in furniture. It is nearly as hard and dense as maple. The sycamore is the plane tree of ancient history.

## Cherry

Cherry is an unusually close-grained wood of a pinkish color, not often used for veneer, although it possesses strength and hardness.

## Basswood

Basswood is a quick-growing tree with soft fibrous texture and is lacking in strength. It is light, easily cut cold on the lathe, and holds glue admirably. The rotary cut veneers are best suited for cores and for cross-banding. Basswood has been a favorite veneer for use in trunk making. There is no figure and little finishing quality to basswood veneer.

## Cottonwood

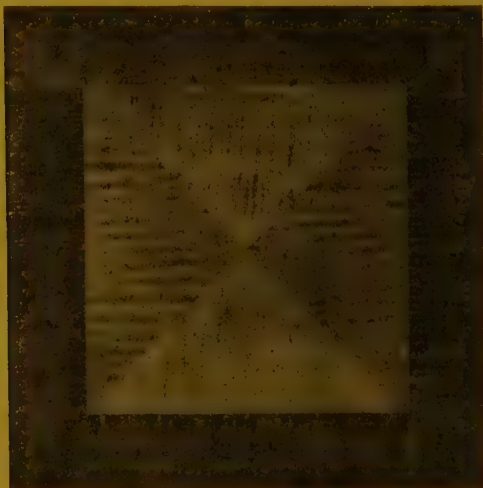
Cottonwood veneer is not particularly strong, has no figure and is used mostly for box shooks. The better grades, when rotary cut, can be used for veneer cores.

## Pine

Pine veneer and plywood are chiefly used in the making of doors, cabinets, paneling and the like. There is no figure in pine, but considerable grain character is obtained by rotary cutting.

## Douglas Fir

Douglas fir veneer is largely used in the manufacture of 3-ply door panels. Douglas fir plywood is used ex-



**Fig. 22. Curly soft maple veneer, rotary cut, diamond-matched in panel, with rosewood border.**

(Courtesy Luce Furniture Co.)



**Fig. 23. Showing the wide variety of grain in rotary cut brown ash.**

(Courtesy Underwood Veneer Co.)



**Fig. 24. Showing several sheets of rotary cut grey elm, joined together.**

(Courtesy Underwood Veneer Co.)

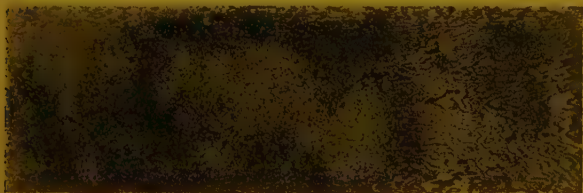
tensively for interior paneling, as well as for linings, backing, drawer bottoms and all work where light weight, strength and freedom from warping and shrinking are demanded. It is also suitable for the manufacture of trunks and cases. (See Fig. 25).

## **Cedar**

The aromatic cedar is used as a sawed veneer for the lining of cedar chests. The Spanish cedar makes wonderfully large sheets of sliced veneer, used almost exclusively for cigar boxes, either in plywood or solid  $\frac{1}{8}$  inch thickness. It is occasionally used for drawer bottom and mirror back grades in furniture.

## **Cypress**

Cypress has peculiar lasting qualities, but it is not often used for veneer. It has little figure or character.



**Fig. 25. Showing the typical grain of rotary cut Douglas Fir.**

(Courtesy Wheeler-Osgood Co.)

## Spruce

Veneers from clear spruce are used to some extent in airplane construction, because of the unusual combination of light weight and strength.

## Redwood

Redwood has the peculiar burl growth that provides the extraordinary twisted veneer figure so well adapted to on-lays and overlays, but is rarely used otherwise as a veneer.

The above are the principal woods used for veneers, although there are other native and imported species which also are utilized.

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# CHAPTER VII

## FANCY AND FIGURED WOODS

**Acacia** is a tree similar to the modern locust. It has narrow sapwood and vari-colored heart wood, ranging from yellowish brown into shades of red and green. Used in early inlays.

**Amboyna** burls are fragrant, light reddish brown to orange, very hard and beautifully mottled and curled, take a good polish and are durable. Grows in the East Indies and is used only as an inlay.

**Boxwood** is close, hard-textured, the only American tree varieties growing on the Florida keys. Not hardy. Used chiefly for wood type, skewers, toothpicks and other products requiring density and toughness. As a veneer its only use is for inlaid work when its peculiar yellow shade is desirable.

**Ebony** grows in southern India and Ceylon. The sapwood is a dingy gray, while the heart wood is deep black in color, very heavy, hard, fine grained and takes a high polish. Used as a veneer for inlays and for entire surfaces of plywood. Solid wood used for piano keys. West Indian ebony is used for making flutes and wood wind instruments. American persimmon tree, with exceedingly hard wood, is of the ebony family.

**Holly** grows in nearly all countries. Four species are found in America, the best in Texas. European and American holly resemble ivory in color and texture. A hard wood, it is used for engravers' blocks, walking sticks and veneer inlays. Terms "ilex" and "holm-oak" sometimes used to refer to this wood.

**Laburnum**, the Corsican ebony of Rome, was used by the ancients as a veneer, but it is not a true ebony. Sapwood is yellowish, heart wood dark brown with a greenish tinge. Has distinct rings and pith rays, taking a high polish, but is not strong or durable.

**Lotus**, said to have been used in Greek sculpture, and was probably the nettle tree, is still used in Southern Europe. When cut obliquely, this wood resembles satinwood. Similar to American hackberry.

**Olive**, which originally grew in Mediterranean regions, is related to the family of ash trees. Wood is close and fine grained, light yellowish brown, with irregular wavy dark lines and mottlings, especially near the root, resemble boxwood in texture, takes an excellent polish and has no distinguishable rings or pith rays. Used in early inlays and marquetry.

**Plane** is the European sycamore, closely allied to the American species, and its use for veneer inlays dates from antiquity.

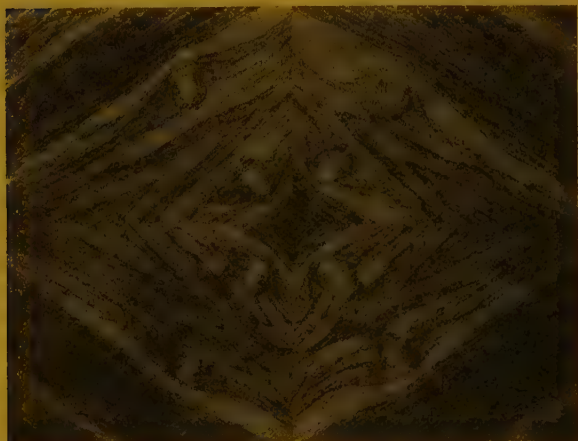
**Purpleheart** is a tree growing in Trinidad, yields a wood of beautiful purple freshly cut, but blackening with age. Durable, but its changeable color restricts its use for veneers and inlays.

**Rosewood** is named from the odor of its fragrant resin or oil. Commercial supply of logs, from which rosewood veneers are cut, comes from Brazil. Tree seldom yields logs large than 14 inches in diameter. The wood is dark chestnut or ruddy brown, richly streaked and grained with black resinous layers; porous, open grained, heavy, takes a fine polish, but is liable to heart shake. (See Fig. 26).

**Saffronwood**, hard, close grained and tough but with handsome figure, grows in South Africa. Used somewhat for veneers and furniture.

**Sandalwood** comes chiefly from Southern India. Its fragrance increases with age. Wood is very hard, yellowish brown, close grained but liable to heart shake. Its diameter runs up to two feet. Used for carving, ornamental boxes, walking sticks and fans. Veneers used for inlays.

**Satinwood** comes from Australia, India and the West Indies. Wood is light orange with beautifully feathered figure, heavy, hard, close grained and takes an excellent polish. Likely to darken with age, as does mahogany. More beautiful feathered wood is used for veneer inlays, brush backs and cabinet work. (See Fig. 27).



**Fig. 26. Brazilian rosewood, four-piece matched.**  
(Courtesy New Albany Veneering Co.)



**Fig. 27. Feathery figure of satinwood, four-piece matched.**  
(Courtesy New Albany Veneering Co.)

**Teak** is an Oriental tree, with fragrance similar to rosewood. Used for chests, as its odor repels most insect pests. Somewhat similar to oak in working qualities. Not much used for veneer or inlays.

**Terebinth**, a Syrian tree, was used for inlays in ancient times.

**Tulipwood** comes from Brazil and is a rose colored, beautifully striped wood used for inlaying. Not to be confused with the tulip tree or poplar.

**Whitewood** usually refers to the tulip tree. The wood is similar to and often confused with the poplars, but the true tulip tree is heavier and more valuable as lumber and veneer.

**Yew**, is a tree known to the ancients, has wood of a reddish brown, resembling mahogany, hard, close grained and elastic, susceptible of a high polish, insect proof, and more durable than any other European wood. Japanese yew, a lighter wood, is used for cabinet work and lead pencils.

**Zebrawood** grows in British Guiana, and is locally known as "Hyawaballi." Reddish brown, beautifully striped and takes a high polish. Very rare. (See Fig. 28 and 29).

## CHAPTER VIII

### PREPARING LOGS FOR VENEERS

#### Logs Suitable for Veneers

Logs suitable for cutting into veneers must be straight, sound and clear. Those less than 15 inches in diameter at the small end are rarely suitable for rotary veneer, since some wood is always lost in truing up the log and from 6 to 7 inches in the center cannot be cut at all. For slicing and segment sawing, logs should be 18 inches and up, to allow for flitching, or opening up.

#### Flitching

The freshly cut oak log is taken into the sawmill, where it is split up and flitches (6 inches and up wide) are sawed. In cutting logs into flitches, care must be exercised so that the medullary ray, from the center of the log, runs parallel to the sides of the flitch. This ray forms a sunburst in the log, extending out from the heart,



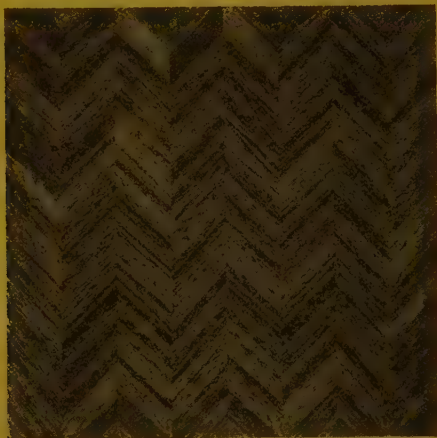


Fig. 28. Zebra-wood arranged in diagonal stripes.  
(Courtesy Luce Furniture Co.)



Fig. 29. Zebra-wood, matched in four pieces, giving a diamond pattern.  
(Courtesy New Albany Veneering Co.)



and the best figure or flake is produced when the sawing parallels this ray. These flitches are now ready either for sawing or slicing into veneers.

The sheets of quarter-sawed veneer are produced by taking fresh cut flitches direct to large, accurately built circular saws with segmental teeth. The flitch is clamped to a carriage by edge "dogs," with the better quartered face exposed to the saw. It is then sawed into the required thickness. The sheets dropping from the flitch must be kept in sequence, and it is standard practice to number them so that their relative position cannot be lost. The veneer should be dried immediately to prevent discoloration.

## **Drying Methods**

There are several drying methods. The older way is to set on edge in racks in a room with forced air current for drying. The modern way is to pass veneers in sheets through mechanical dryers, either roller, belt or platen type.

## **Preparation for Market**

When dried, the veneers are reassembled into their original flitch form and measured. The customary way of measuring is to turn two sheets at a time and measure with tape from edge to edge, later computing the total footage. The final markings on the flitch should show the length, the average width, as well as the total width by the tape line, the total footage and the number of sheets in the bundle.

## **Steaming or Cooking Logs**

Nearly all varieties of veneer logs are steamed or cooked in hot water to soften the texture, so that they may be cut on slicer or lathe with a minimum of tearing and breaking. Hot logs, direct from vats, are preferred for easy cutting. Some kinds of logs, like basswood, are cut "cold," i.e., as they come from the woods.

## **Slicing the Flitch— Mahogany**

The mahogany flitch as it comes from the bandmill is clean, sound and reasonably free of defects. The flitch is passed through the steaming or boiling vats, where it is

both heated and softened in preparation for the slicers. Slicing cold without steaming is impossible with a wood as hard as mahogany.

The slicers are massive upright machines. The largest slicer is some 12 feet high, with a movable bed, equipped with "dogs," which take a flitch as large as 24 by 30 inches and up to 17 feet long. The bed, with flitch clamped thereon, is moved up and down, on diagonal guides, by means of two crank shafts, giving a "shear cut," while the knife bar is fed in, between strokes, a distance equivalent to the thickness of a sheet of veneer, usually  $\frac{1}{28}$  inch, but sometimes  $\frac{1}{24}$ ,  $\frac{1}{20}$  or  $\frac{1}{16}$  inch. The grinding and sharpening as well as adjustment of the cutting knife and pressure bar, is an operation requiring much skill and experience.

### **Preparing Veneer for Plywood**

Veneers of different cuts and grades are utilized not only for plywood faces, variously figured or plain, but also for cross-banding to reinforce both faces and backs; for backs, concealed or exposed; and for cores in panels, chiefly due to economic reasons.

Before the veneers are ready for gluing together, the different sheets must be prepared as to selection, size, arrangement and dryness. This is technically called making them "ready to lay." After being dried the veneers are cut to dimensions by a band or circular saw, an inch thickness being sawed at once, the rough sides and edges being unobjectionable, as they are trimmed off after gluing.

The medium figured, relatively straight grained face veneer is usually cut to dimension by use of veneer clipper, on which several sheets at a time may be clipped to approximately one inch longer and wider than the finished dimensions. This over-length and width is for final trimming after gluing. The width and choice of face veneers must be carefully considered by the clipper operator, since faces and backs may be specified in any of the following ways:

Faces—One-piece, two-piece, center matched; balanced joints, random joints, selected for color, sap no effect.

Backs—Sound, reject.

### **Jointing, Matching and Taping**

Joints between sheets of face veneer must be practically imperceptible in the finished plywood product, except as

their presence is evidenced by change in the direction of the grain or figure of the wood.

## **Jointers**

Sawed or clipped edges are planed down smooth and true on a veneer edge jointer. A package of veneer, approximately an inch in thickness, is "jugged even," and clamped on a reciprocating table which carries the edge of the package over a rapidly revolving special planer or sticker type of cutter head. These cutter heads sometimes contain as many as 16 knives to each head. Light cuts must be taken and the table feed must be slow and the cutter knives sharp.

For jointing veneers for diamond-matched, V-matched, four-piece and butt-matched face veneers, many manufacturers find the guillotine clipper and jointer a superior tool, by the use of which more accurate and more perfect matching and jointing may be accomplished.

## **Matching Veneers for Faces**

After the veneers are properly jointed, they are taken to the matching table and clippers. This is one of the most important operations in the modern plywood plant, as at this point the operator must carefully select and assemble each separate sheet of fancy as well as plain face veneers, so that when the various assembled sheets are taped together they are ready to lay up as a "complete face." The character, the figure, as well as the color, must be exactly and accurately matched at each taped joint.

## **Taping Machines**

The veneer is now ready to be taped together preparatory to gluing into plywood. The most convenient size for gluing into plywood is approximately 2 feet by 4 feet, and smaller units are frequently made "two-on," "four-on," or in even larger multiples. These are not cut apart until the final trimming of glued plywood stock.

In a taping machine the rollers under which the veneer first passes are "canted" towards each other, forcing the veneer edges tightly together. The gummed tape comes down from above and is moistened by means of revolving rollers operating in warm water, after which it is pressed down onto the two sheets of veneer by a wide crowned roller. The jointed edges are thus brought together and held in close juxtaposition by means of converging rolls.

The pressure roller is heated by means of a gas jet or an electric heater, and this artificially heated roller, pressing upon the tape, immediately sets and dries the glue. The off-bearer breaks the tape between sheets of taped veneer and inspects the resulting joint. If for any reason the workmanship appears imperfect, the tape is torn off before the glue is set too hard, and the sheets of veneer are passed back for retaping, or rejoining, or both.

It is the practice in some factories not only to tape the jointed edges together, but to tape the ends of the veneers, as well, to serve as protection against splitting in handling.

### **Varieties of Tape**

Tape is made of cloth or Kraft paper, of various widths and thicknesses, some is solid, some is perforated, and it is usually pregummed, although it is occasionally gummed in the taping machine. Paper tape approximately 1 inch wide and .002 inch thick, is considered good average practice.

In modern practice, cloth tape is used more for hand application on sample sheets of veneer which are to be used for demonstration and sale purposes. Perforated tape was formerly used for crossings where it was considered that non-perforated tape might weaken the joint between either crossing and face or crossing and core, the latter being least objectionable. Thin, tough Kraft paper (both perforated and solid) is now quite generally and satisfactorily used for taping cross-banding.

### **Gluings Edge Veneer Joints**

Many plywood manufacturers advocate a special operation to apply glue and cement edges of veneer together under the tape. This is done by folding back the joints after taping, and passing the exposed edges over a small horizontal or vertical glue roller. The sheets of veneer are flattened, the surplus glue scraped or wiped off, and the sheets placed in a cradle, which holds the glued edges together until dry.

### **Matching**

The following method of matching is sanctioned by long use.

Two adjacent, but reversed, pieces of veneer are first

laid on the table, so that the figure exactly matches, even if ends require further trimming. The outside edges of the pair of pieces are then tacked to the table so that the veneer arches up a trifle to force a tight center joint. The two pieces of veneer are fastened together at the joint with gummed tape, temporarily held down by weighted bars or backs. When removed from the table after the tape glue is dry, two pairs (four sheets of veneer) are laid together, two more, and so on, in double pairs. The double-sized package or book is again taken to the guillotine cutter and the ends (to be further matched and taped together) are then trimmed true and even.

After trimming, each two pairs are laid out flat on the table, tape side up, and a bit of tape torn away at center end of side joint for better observation. The pairs are arched as before to obtain a snug joint. Especial care must be exercised to see that the four-way center joint matches exactly and that corners are not ragged or torn. Tape is then glued down and weighted, or tacked, as before. These tapes will be sanded off, after gluing into plywood, so that the surface observed during matching on table will be the final outside face of plywood.

Some authorities advocate end matching first, and side matching second, and undoubtedly some veneer stocks are better handled in that order, but the steps are quite similar to the above.

In most modern plywood plants, stump and butt wood is taped together at the joints by means of power-operated taping machines. Painstaking care must be exercised in laying together the separate sheets, as the slightest variation in grain or figure, when the various sheets are assembled, means a mismatched and non-uniform design. When each two or four-piece unit has been accurately matched and assembled, the "sets," as they are called, are taken to the taping machine. There the sheets or butt or stump veneer are taped together in a manner similar to the taping of ordinary face veneer.

## **Diamonds, Segments, Miterings and Borders**

Diamond-matched veneering is frequently used on door fronts and panels, the mitering extending from corners to center of door or panel. The veneer cutting and matching is done in a way quite similar to the four-piece stump wood just described, but the angle carries from 90 degrees sufficiently to cover the oblong surface symmetrically. In

fine diamond-matched four-piece veneer the grain usually runs around the pattern, but may be radial. "High lighting" is often practiced in finishing these diamond effects, with light shading in center, increasing to darker shades at outside. Center medallions are frequently used, since perfect center point matching is most difficult to achieve.

Segmental veneer matching is a variation of refinement of the diamond pattern, with more than four joints giving a sunburst or star effect. Angles have to be most carefully measured.

Border veneering, side grain to side grain, or end grain to end grain, produces the effect of framing, or with shading, of a sunken or raised panel. (See Fig. 29). It is entirely a development of the principles outlined in four-piece stump work. In some of the more intricate figures and patterns, practically the whole combination of sheets of veneer, individually and severally, is attached to an entire sheet of gummed paper, since so many overlapping tapes would produce uneven thickness or "piling" for subsequent gluing into plywood.

### **Plywood and Veneers for Furniture Uses**

Furniture manufacturers use relatively thick single-ply veneers for drawer bottoms, mirror backs, protective dust bottoms, case backs, and the like. In better grades of furniture, 3-ply veneer is preferred to single-ply.

Filing cases and transfer boxes often have veneer sides and bottoms, with or without cloth or paper covering, the veneers being nailed to lumber ends. Trunk partitions of single-ply veneer, cloth covered, are often made.

### **Laminations or Plys**

The term plywood has been accepted by the producing trade to provide a brief descriptive title that distinguishes the glued or built-up laminated product from its component single sheets. Strictly speaking, a "ply" refers to a fold or doubling of thickness, and by usage is modified to describe flat layers or strands of rope or wire.

Laminated veneer may be 2-ply, 3-ply, 4-ply and so on, but commercially is usually 3-ply or 5-ply, the increased number of plies being an indication of increased strength and better quality. An uneven number of plies, such as 3, 5 or 7, permits equalized internal stresses. In 3-ply, the grain of face and core are at right angles. In 5-ply,

face, back and core grain are parallel and crossings at right angles. Plies laid together with grains at angles of 30, 45, 60 degrees and the like, will not result in flat plywood, since internal stresses are out of balance.

### Definitions

The Forest Products Laboratory, maintained by the United States government at Madison, Wis., has prepared these definitions.

Laminated wood, refers to constructions in which two or more layers of wood are fastened together with the grain of all plies or laminations parallel.

Cross-banded veneered panels, refers to a glued material with veneer faces, veneer cross-bands and a lumber center or core.

Plywood is used to describe a combination of several plies or pieces of veneer glued together usually so that the grain of any one ply is at right angles to the adjacent ply or plies.

However, many consider the description by the laboratory as too narrow to suit accurately modern trade practices and usage of terms\*.

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## CHAPTER IX

### GLUES AS USED IN PLYWOOD, VENEER AND FURNITURE CONSTRUCTION

#### Glues

The employment of an adhesive between pieces of wood is very ancient. Graphic illustrations tell us it was used in Egypt at least 3,500 years ago. Wooden furniture discovered recently in the tomb of King Tutankhamen gives indisputable evidence of the use of glue, both in veneering and joint work. The Egyptian glue probably was similar to the animal and fish glues of the present time. There also is evidence that casein glue was known to the ancients. There are references to the use of glue by the ancient Egyptians and Romans, but there is little to show its use during the Middle Ages, although it is probable that animal glue was well known and commonly used. Casein also was a recognized adhesive in the early Christian centuries. No records have been found to indicate the

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\* For further study on "Lumber Cores and Their Preparations", the student is referred to Chapter XXIV of "Veneers and Plywood", by Knight and Wulpi. Published by Ronald Press, New York.

use of other than animal glue in the early American colonies, and in the United States up to the latter decades of the Nineteenth century.

### Kinds of Glue

The principal classes of glue now in use may be listed as follows: Vegetable glue, animal glue, casein glue, blood albumin, sodium silicate (water glass) and liquid glues.

### Vegetable Glues

Vegetable glue is essentially a mixture of starch dissolved (or more accurately, peptized) in a solution of caustic alkali. A German formula dated approximately 1870 gives directions for preparing "apparatine" from starch, water and caustic soda. This glue first became important in plywood making in the United States about 1910.

Dry vegetable glues consist chiefly of starches, the usual predominant starch being tapioca, which is produced mainly in Java. It comes as a white powder, or as easily crushed granules packed in bags. This dry glue is then prepared for use by dissolving and cooking. The glue is first mixed with cold water in the proportion of 100 parts dry glue to 200 to 225 parts of water. A predetermined quantity of caustic soda solution is slowly added. This caustic soda solution is mixed separately and should consist of about 3 parts of dry caustic soda to 10 parts water. The soda may be added before or after the mixture is heated. At no time should the temperature used in heating exceed 180 degrees F. Heating is continued until the light amber color appears and the glue flows from the end of a stick like clear transparent syrup. The batch is then cooled to room temperature, the stirring being continued, and the glue is used cold.

In different classes of work the caustic soda is often varied, from  $\frac{1}{2}$  pound of soda to 100 pounds of dry glue. With 7 per cent or more of caustic soda, heating becomes unnecessary. Experience has shown that the highest ratio of caustic soda to dry glue, from the standpoint of strength, is about 3 to 4 per cent.

The advantages of vegetable glue over other adhesives have made it the most important and the most used glue in the plywood and veneer industries. It is economical,



it makes good glue joints, reasonable temperature variations do not affect it, and it has a long working life.

Vegetable glue is not waterproof. It is, however, proof against dry bacterial decay and against the influence of dry heat.

## **Animal Glues**

The ordinary animal glues are by-products of the meat packing and hide and leather industries. Almost everything that cannot be developed into edible or wearing form is converted into some grade of glue or fertilizer.\*

## **Testing Glues**

The glue tests fall into two general forms, one for constituents and qualities of the glue in powder and liquid form, the other for strength of joints made in various ways with different glues.

## **Testing Animal Glues**

Viscosity is determined by allowing a specified amount of glue at a definite temperature (usually 140 degrees F.) to flow through a standard orifice. The time required is a measure of the viscosity. In general, high viscosity glues are stronger than the low kinds, but there are exceptions to this rule.

Jelly strength is a term referring to the firmness or elasticity of the jelly formed by cooling a glue solution of specified strength. Most jelly tests, therefore, are comparative, to determine quality with a known sample. Other tests are made of odor, keeping quality, grease, foam and reaction to litmus.

Gelatine, in its table form, is the highest grade of animal glue, made almost entirely from hide materials. The purer grades of hide glue are the best, where strength is required.

Animal glues are easily prepared for use by dissolving in water, and keeping the solution at the desired degree

\* "The Chemistry and Technology of Gelatine and Glue", by Robert H. Bogue. (Mellon Institute Technochemical Series.) Published by McGraw Hill Book Co. "Glue and Gelatine", by Jerome Alexander. (American Chemical Society Monograph Series.) Published by the Chemical Catalog Co., New York, 1923.

of fluidity by heating in a double boiler or similar receptacle. The temperature should ordinarily be 140 to 150 degrees F. High grade glues work well with two parts water to one part dry glue (by weight) and may, under careful use, be reduced to three parts of water. The lower the grade of glue, the weaker the joint, no matter what ratio of water is used.

Animal glue has excellent penetrating qualities, if applied to wood at the proper temperature, but requires heat in its preparation for use, must be kept hot and applied in an overheated room to wood or veneers, which are often pre-heated. Due to its qualities of thickening rapidly, as it cools, and to its deep penetration into wood, the surfaces covered with glue must be brought together under pressure as soon as possible, within five minutes if spread glue is fully exposed to the air, and within ten minutes if partially exposed.

No great success has attended efforts to make animal glue waterproof. Neither is it heatproof, i.e., dry heat may cause animal glue joints to swell.

Animal glue adheres quickly, sets quickly and joints may be made perfectly tight, practically without pressure, if the surfaces to be glued are spread with it, placed in contact and rubbed together a few seconds. It is easily applied with a brush and is strong far beyond the usual demands made upon it.

## Casein

### Glues

Casein is the albuminoid constituent of milk. It is produced commercially either by allowing skim milk to sour or by adding acid to it. The casein is precipitated in the familiar form of curds. It is then separated from the whey, washed, dried and ground usually to 30 or 40 mesh fineness.

Casein, itself, as it is known to commerce, is a hard, horn-like, gritty powder which swells when placed in water but does not dissolve. It can be made to dissolve in water by adding an alkali as caustic soda, soda ash or borax. This will yield a strong glue if the alkalin is added in amount insufficient to complete its conversion to sodium caseinate, but still sufficient to convert a part of it to caseinate, which portion peptizes the uncombined portion of it into a thick colloidal solution having the properties of a fairly good glue. Such a glue is not at all waterproof, but, after drying, will readily redissolve in water.

Hydrated lime, if added to casein and water, acts upon casein toward the formation of the insoluble calcium caseinate. This, too, may be used as a glue, and of course is waterproof, though rather brittle and having little tackiness and low penetrating properties. In order to use a mixture of casein, lime and water as a glue, it must be applied under pressure while the reaction is in process and before its completion.

The casein glues actually used in the plywood industries are combinations in various degrees between the two types explained above. That is, they all contain an alkali which acts to partly peptize the casein as sodium caseinate, giving the glue strength, penetration, working life and elasticity; they also contain lime, which progressively acts on the uncombined casein and on the sodium caseinate to form the insoluble calcium caseinate, which gives the glue its self-setting and water resisting properties. In addition, manufacturers frequently add other chemicals and other colloids, which tend to give desirable qualities.

Casein glues are preferably mixed in some sort of stirrer which has a rather rapid beating action, so as to prevent the formation of lumps. The dry glues are dissolved in cold water (50 to 80 degrees F.) without any cooking and applied cold, hence the term "cold glue." Casein glues are opaque liquids, generally of white, creamy or light colors, of about the consistency of thick paint. The more highly water resistant ones thicken after a few hours, become extremely viscous and finally jell to a rubbery mass. Such glues must be used up before this occurs. It is said that a casein glue which does not jell of itself, is not waterproof.

Casein glues fill a unique place in woodworking, especially because of their resistance to the influence of water and heat. These qualities, in some casein glues, are so great as to make it possible to use them in making plywood for purposes where vegetable glue would not be at all suitable. As casein glues set quickly, they are especially adaptable for use in making "formed shapes" of bent plywood.

## Blood Albumin Glues

Blood albumin glue is the most recent adhesive to be developed on a commercial scale in the United States. Prepared blood albumin glues are not yet available, and each user must base his mixture on the commercial dried

soluble blood albumin that is a by-product of the packing industry. The initial preparation of the raw product and the mixing operations for glue must be carried on at temperatures well below 160 degrees F., the coagulation point of albumin. Only when the glue is spread and the veneers inserted in the press, is it desirable to exceed 160 degrees, and then it is for the specific purpose of coagulation, which hardens the glue and makes a practically waterproof glue joint.

There are several patented processes for making this glue. One of the best known is the following:

100 pounds black soluble blood albumin (90 per cent soluble).

180 pounds of water at about 80 degrees F.

4 pounds ammonium hydroxide (specific gravity 90).

3 pounds hydrated lime.

The blood albumin is allowed to soak in water for a couple of hours, and should then be stirred slowly, and strained if necessary to remove insoluble particles. The ammonia is then added, while it is still stirred sparingly to avoid a foamy glue. Lime is finally added in the form of a thick cream and gentle agitation continued. Care should be exercised to avoid an excess of lime, which may thicken the mixture unduly until it approaches a jelly. The final glue should be of a moderate consistency, and will remain suitable for use for several hours.

This glue may be mixed and applied at normal room temperatures without artificial heat or cooking. It may be applied with either brush or mechanical spreader, but the spreader rolls must not be operated except during spreading, since idling them in the glue has a tendency to develop foam.

To secure the full advantage of coagulating the glue by heat, the veneers should be as thin as possible, preferably not over  $\frac{1}{16}$  inch thick, and no glue strata should be more than one thickness of veneer away from the hot plates. Multiple plies must be glued singly on each side of previous product, and thus each layer of veneer properly "set."

Blood albumin glue is a somewhat disagreeable material to work with, but is not as brittle as casein, has approximately the penetration of animal glue, and is as simple to use as the other glues, except for the requirement of hot pressing.

### Sodium Silicate

Sodium silicate is produced solely from mineral materials by fusing together sand and soda ash. The resulting product is dissolved in hot water and is the familiar "water glass." There are many modifications of water glass, depending on the molecular ratio of soda to the silicate group and upon the content of water. The silicate of soda used in woodworking, however, is a clear syrupy liquid. It is never used for plywood work in furniture, but only in making plywood for box shooks.

Joints made of water glass fail of themselves after a few months because of the slow action of the air on the alkali of the silicate, and the general breaking down of the colloid. It is a very cheap and excellent glue for its particular purposes, as it is waterproof and produces plywood for tighter, stronger and lighter packing cases than could be made from solid wood.

### Liquid Glues

Liquid glues are largely prepared glues and seldom used for extensive factory production work, because of cost. By far the larger proportion are made from fish bladders, and the best grades have excellent strength qualities. These glues are chiefly used in repair shops, for household requirements, and for factory purposes where limited quantities are required, such as dowel setting and the application of overlays, as well as ornaments and the like. For operations where continuous heat is not obtainable, they may prove useful in factory work, though not so satisfactory as animal glue or casein joint glues.

### Theory of Gluing Wood

The first essential property of a glue is that it shall be fluid enough to spread evenly on the surface of the wood, and having been spread, to remain sufficiently fluid to send out tiny fingers or prongs into the spaces between the fibers of the wood.

The second essential property of a glue is that, having penetrated into the open spaces or pores between the fibers of the wood, it shall then be of such a nature as to become jellified, or, in other words, change from a liquid to a semi-solid which now does not penetrate further or

pass through the cell walls of the wood but remains in the joint in an exceedingly thin irregular film having tiny fingers extending into each of the pieces of wood on either side.

The third essential property of a glue is that it shall be capable of drying and of drying into a body having strength. The film of glue and all its fingers or prongs should dry into an actual solid, having mechanical strength sufficient to retain its shape and to hold unbroken each of its many fingers. These fingers, in turn, act as so many tiny nails extending into the fibers of the wood of each glued surface, and make one unit of the various surfaces glued.

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## PART VI

# *Furniture Machinery*

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*(Unless otherwise designated, the illustrations by  
courtesy of Oliver Machinery Company)*



# Furniture Machinery

## CHAPTER I

### HISTORIC

Furniture machinery is often and mistakenly regarded as machinery that makes furniture. It is safe to say that no machine ever made a single piece of furniture. Such furniture as is completely cut, sized, finished and put together with machinery cannot be regarded as contributing either to human comfort or to the furniture arts. Without the human touch, no piece of furniture can give the utmost of service or comfort, nor can it extend the cultural influence which furniture has exercised in all periods of civilized progress.

By furniture manufacturing machinery, therefore, we mean such time and labor saving devices as lessen toil and physical effort, at the same time obtaining such mathematical and structural perfection as cannot be obtained by hand or even measured with the human eye. The sculptor does not hew the rock from the quarry from which he makes a statue of a Venus. His is the artist's touch. He gives it soul and divinity. To take his time in menial labor would be a sinful and economic waste. Hence, in the perfecting of the machine, the artist has been glorified rather than retarded.

The more accurate the machine, the more efficient its operation, the more opportunity is given the craftsmen to devote his mind and technique to a perfect result. If this effort were invested in manual labor, the result would be a drain upon both the body and spirit, that is, the effort of the laborer would be dissipated in physical form to such an extent as to impede his imaginative and creative accomplishments.

The history of furniture machinery, like the history of furniture itself, is an absorbing story of human advancement. The transition from the ox cart to the airplane, from the oil lamp to the electric bulb, and from the town crier to the radio telephone, is no more bewitching than the evolution from the ancient one-man jointery shop, producing a few pieces of furniture a month to the modern furniture factory employing thousands of men and producing hundreds of pieces of furniture per hour.

It would take not only one but several very large volumes to trace step by step the development of furniture manufacturing machinery from the primitive hand

tools to the present day of highly productive and very efficient high speed machines. It is not our object to make such an attempt at this time. The scope of this discussion will be merely to trace the different epochs or cycles which have influenced and controlled the evolution of furniture machinery since the days of the hand tools, and then to describe in detail what constitutes a complete mechanical equipment of a modern furniture factory for the efficient manufacture of wooden furniture of almost any type and kind desired for use in the bedroom, the dining room and the living room of modern homes.

### **Cumbersome Method of the Past**

Without question, the furniture builder of old was forced to do all of his work with hand tools. Artisans of old, operating individually, had not only the task of conceiving the design of furniture in their minds and dreaming the ultimate shape of the piece they intended to produce, but they were forced to do the actual labor. They cut the boards out of the logs by the method of supporting the log in a horizontal position on struts. One man stood below and another climbed on top of the log and with a frame saw, the one pulling and the other pushing, they cut the log into boards. Then, each of these boards, in turn, had to be sawed to the lengths desired, ripped to the shape and width according to the design in mind; had to be planed, shaped, moulded, mortised and tenoned, dovetailed, scraped, fitted, jointed, sanded, and finally assembled into the piece of furniture; each and every operation being performed with hand tools, which in themselves had required many centuries to be developed.

### **Tools Replaced By Machinery**

Inevitably, as the requirements of society increased, the hand tools were destined to be replaced by machinery. All of this has happened within recent generations. It would be useless to describe in detail the steps through which each type of modern hand tool has been developed, but it will help to emphasize the importance of this drama of evolution if we mention in passing the steps through which the saw, the most important of all tools for reducing lumber, was developed. Primitive man, no doubt, used a flint saw during the stone age. Later saws were made of bronze, but iron was really

necessary in the construction of a useful saw, because stone saws had no real value, and those of bronze were little better. The date of the invention of steel, is not known. Hesiod, about 850 B. C., refers to "bright iron" and "black iron", and Ezekiel, in 600 B. C., refers to "bright iron", but these were undoubtedly of a very poor grade of steel. Ancient history tells of the wonderful sword blades from Persia and Damascus. These blades were made of steel about 335 B. C., and at about 600 B. C., Diodorus, a Greek, wrote of Celtiberians as being "armed with weapons of excellent temper."

### **The Coming of the Power Saw**

The real beginning of modern types of wood cutting saws dates from the introduction of the power mill, the reciprocating "up and down" mill, which were very crude but a big improvement over the previous method of sawing a log. The earliest patent on circular saws is No. 1152, granted to Samuel Miller in England, Aug. 5, 1777, although it is claimed that similar saws were in use in other countries prior to that date. The first circular saw in this country is supposed to have been made about 1814, in Bentonsville, N. Y., by Benjamin Cummings, who had merely the facilities of a blacksmith shop with which to perform his work. The general use of circular saws for the manufacture of lumber is reported to have originated in a patent granted March 16, 1820, to Robert Eastman and J. Jaquith, of Brunswick, Maine. It was after 1840 that the development of the inserted tooth saw was started, when real rapid progress was made in the art of saw making. While the circular saw was being perfected, the necessity of conserving lumber by maintaining very thin saw kerf was recognized and, therefore, the band saw came into use. The first endless band saw blade is supposed to have been patented by William Newberry, of London, England. It was not until 1876 that the style and proportions of band saws, which in the remote sense resembled the modern machine, came into being. Progress since that date in the development of the circular sawing machine, as well as the band sawing machine, has been decidedly more rapid.

### **Ropes, Belts, Pulleys**

Before hand tools could be changed into power tools, it was necessary to discover the application of either rope

or flat belts on pulleys for the purpose of rotating one unit at a higher or lower speed from the source of power. After this application of pulleys, and the idea of the use of belts was born, artisans entered into the period of hand power. One man would rotate the wooden pulley, which was supported on some kind of axle. The periphery of this wheel through a belt would deliver power to the second shaft, which would rotate the saw or knife against which another man would shove the piece of wood. This can be called the hand power age.

## **Foot, Animal and Water Power**

The next step of development was the foot power age, where light machines were built for one man to furnish the power by his feet, while his hands fed the stock towards the cutting unit; the transfer of power being performed by belts.

Then came the application of cog wheels. Wooden pegs were driven on the periphery of certain wheels of large size; these would mesh into a smaller unit known as a pinion, to transmit power from the slower to the faster running unit. After the cog wheel was developed, animal power was introduced. A horse would walk in a circle dragging after him a wooden beam, the opposite end of which was fastened to the shaft of the large cog wheel. The pegs of the cog wheel would mesh into the pinion and deliver power to the saw mill or the mechanical unit in use. About this time wind and water power were used to rotate shafts. Water power was developed very rapidly, but had the decided drawback of requiring all power units to be located at points where a comparatively large fall of water was to be had.

## **The Steam Engine Arrives**

All development of woodworking machinery was slow until the steam engine came into being. By burning wood refuse in a boiler, steam was created. The power of the steam engine revolved large pulleys which, by means of more or less suitable belts, applied power to a line shaft. During this time discovery was made of the use of the line shaft with its hangers, couplings, driving pulleys, etc., for the distribution of power to smaller units of machinery, all from the one source of the one steam engine and the one line shaft.

During the earlier part of the steam engine period, the speeds of all woodworking machinery were comparatively slow, and the transmission of power was inefficient. Very often the friction load, that is the power consumed by the line shafts, belts, pulleys, bearings, countershafts, jackshafts and other accessories, amounted to far more than the actual power used in doing the cutting or sawing of the wood. The woodworking machinery of the earlier steam engine period consisted chiefly of shafts held in boxes around which babbit was poured. The frame work of the machines, in most cases, consisted of wooden frames bolted or nailed together and was awkward and heavy to handle.

### **Advent of Wood-Working Machinery**

The art of manufacturing woodworking machinery in this country is about ninety years old. In its earliest stages wood frames were chiefly used. The first attempt to build machinery with cast iron frames resulted in statuesque bases or columns with ornaments and grill work made of wrought iron or castings which were intended to give the machine beauty. As steam engines were improved the transmission of power through belts and shafts was also improved. Next came belt driven machinery of more or less high speed in which babbitt bearings were replaced with bronze bushings and attempts were made for automatic lubrication of bearings through wick oiling systems.

It was during this development of woodworking machinery that the first furniture factory intended for the production of furniture in quantities was established in Grand Rapids, Michigan. In a sense the beginning of woodworking machinery is directly traceable to the development of saw mills and sash and door factories. Therefore, when the first furniture factory was established in Grand Rapids, the owner adopted much the same type of machines as were used in saw mills and sash and door factories. Progress was very slow until the advent of electrical power and the development of electric motors, which were destined to revolutionize woodworking machinery. This might be called the electric power age.

### **The Electric Motor**

The first electric motors developed were of the direct current type and mostly of slow speed in the larger units.

They required brushes and commutators and had considerable sparking which was considered dangerous for woodworking plants because of the saw dust and shavings which could easily become ignited. In general, woodworking plants continued to use steam engines until alternating current induction motors were developed. Here at last was an electric motor which had positively no running contact, except the bearings, and which, having eliminated the commutator, brushes, etc., was absolutely safe for use in woodworking plants.

The first induction motors were of the slow speed type and their chief recommendation lay first, in the ability to use the sectional drive method by breaking up the main line shaft into two or three sections; second, driving each section separately by an electric motor of suitable size and speed, and third, delivering the power through a belt running over pulleys. The advantage of this method over the old steam engine belt drive method was not sufficient to recommend it for general use. Then came the group drive method, where woodworking machines of similar character were grouped together and driven by one line shaft, which was operated by one electric motor for each particular group. Even today many old time furniture factories adhere to this group drive method, assuming it to be the cheapest method for transmitting power. In many cases old factories, whose machinery requirements increased, faced the problem of enlarging the power plant. They succeeded in doing so by adopting the group drive method in transferring the power formerly taken up by the friction load of line shafts, pulleys, couplings, clutches, and all intermediate accessories, into useful power directly applied to smaller groups of machinery. Nevertheless, belts and pulleys still existed, and therefore high speed and rapid production was not possible.

### **Safety Movement**

About 1906 the safety movement in woodworking machinery was initiated. It quickly brought about the elimination of all unnecessary moving parts, such as shafts, belts, pulleys, hangers, etc. This was done particularly in woodworking plants where all of these units were forced to revolve at higher rates of speed in order to maintain the proper cutting speed of the machine. Engineers faced the task of revamping old factories, motorizing into group drives, from which was evolved the idea of the



individual electric motor drive for each woodworking machine. This was at first accomplished by placing the individual motor on the floor near the machine, or suspending it from the ceiling near the machine and belting to the pulley on the belted shaft, or perhaps belting it to the countershaft and from the countershaft to the machine. We still had to have belts and pulleys.

### **Electric Motor Drives**

In 1906 the Oliver Machinery company was the first in the United States to adopt the direct built-in type of electric motor-driven woodworking machine. This consisted of a motor head wood turning speed lathe wherein the motor shaft and the headstock spindle were one and the same, and the motor took the place of the headstock of the lathe. However, it was not until about 1912 that the first high speed 3,600 R.P.M. alternating current induction motors were invented when real progress was made in modernizing the design and use of woodworking machinery. With a speed of 3,600 R.P.M. the electric motor soon began to be coupled by means of flexible couplings directly to the end of cutter heads on buzz planers, surface planers, jointers, etc. This did away with all intermediate non-essential parts which had been for years necessary to deliver power to the cutting unit. But, still, for the most part, the motor was separate as was the cutting arbor unit—they were merely coupled together.

### **Friction and Bearings**

While the simplification of the power application was going on, great strides had been made in the type of bearings. Old style babbitt bearings were replaced by bronze bushings, and they, in turn, were replaced by anti-friction ball bearings and roller bearings. Rapid strides had also been made in the development of cutting tools. The circular saw, which had for years operated satisfactorily at about 1,800 R.P.M., was now changed by means of better steel and better manufacturing methods into a saw that would operate perfectly at 3,600 R.P.M. Thick laid up knives, which operated in planers and jointers revolving at about 4,000 R.P.M., were replaced by high speed steel knives which in cutter heads revolved at much higher speeds; up to 7,000 and 8,000 R.P.M.

in shaper heads, and 4,000, 5,000 and 6,000 R.P.M. in planer heads and moulders.

Here was the real birth of the modern high speed individual electric motor-driven furniture manufacturing machine. It would use high speed steel cutters, ball bearings and individual built-in motors, eliminating the separate bearings for the motors, and would place the electric motor directly on the cutting spindle of the machine itself. This era is comparatively few years old. It has had its real impetus since the World War. In a true sense it has revolutionized the design of woodworking machinery. During the last few years every woodworking machinery manufacturer has been developing new direct motor driven machinery for the sole purpose of assuring the modern furniture manufacturer of greater production at lower cost.

Let us therefore now consider the mechanical equipment of a modern furniture factory.

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## CHAPTER II

### MACHINERY AND PRODUCTION

#### **General Considerations**

The product always dictates the equipment or machinery necessary for its manufacture. Let us therefore assume that we are going to manufacture a general line of household furniture to be used in the bedroom, living room and dining room of the modern American home. It is extremely difficult for any furniture factory to standardize on any particular design, more especially in the higher grades. The artistic ideas of the designer, the manufacturer and the general public often dictate changes in design. Therefore the factory must be equipped to produce a variable line suitable for use in those particular sections of the home for which the factory's product is intended.

#### **Production Dictates Use of Machinery**

The amount of the production desired also dictates the type and amount of machinery. However, this influence would determine the number of the same kind of machines rather than the variety of machinery. For our purpose, we shall take up the types of machines for conducting

various operations. We shall assume the factory is to be a modern, well regulated large plant with sufficient resources for the most efficient and the best production of furniture. Also that the factory will produce furniture for the annual turn-over of approximately \$1,000,000 or more.

The type and location of the plant is influenced by the product to be manufactured, the physical contour of the property, the climate, the value of the land and many other considerations.

It is not our purpose to discuss the plant, but the machinery in the plant. We will therefore assume that the owner and the architect, as well as the production engineer, have carefully studied the kind of plant, shape, and size, and have chosen wisely. Let us now proceed to review the entire mechanical equipment of this modern furniture factory, following the progress of the chief raw material from the point where it is received in carloads at the railroad siding, through the various departments until it is finally shipped out of the plant.

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### CHAPTER III

#### RAW MATERIAL AND LUMBER YARD

The chief raw material used in the production of furniture is lumber. This material is generally received in open or closed railroad cars, chiefly in open cars. The modern factory will have its own railroad siding, where the cars will be shunted to the unloading shed. This shed has a roof or covering enabling the men to carry on their work in inclement weather without interruption.

Along the side of this unloading shed is the lumber yard. The modern lumber yard has concrete walls and pillars which support steel rails at the proper height. The yard is designed to hold a comparatively large supply of air dried lumber loaded on lumber kiln bunks or piles of the exact size in length and width and height that will readily go into the dry kiln. These piles or bunks are located in the yard in such a way as to enable the yard men to get at any particular pile so that it may be conveyed to any other location in the yard, or to the dry kiln.

#### **Unloading Lumber from Railroad Cars**

When lumber is unloaded from the railroad cars it is piled on trucks with sticks placed between each layer of

lumber; so as to assure carrying the load of lumber in an even and regular manner. Each pile, as it assumes the height and width which is standard for the kiln and the yard, is then taken by transfer cars to its temporary location in the yard, to remain there until that particular lumber is scheduled for the dry kiln.

The modern transfer car is an ingenious affair, operated by one man. It has a reversing motor and is so arranged as to receive any bunk lumber anywhere in the yard, and transfer the entire load into the dry kiln. After the process of dry kilning is completed, the transfer car receives the entire load and moves it into the dry storage. The dry storage is directly adjacent to the factory, located between the dry kiln and the cutting room.

### **Box Type of Vapor Kilns**

Box type of vapor kilns, either of the single or double type, are now in general use. For a good sized factory, such as we are considering, probably four single kilns with a capacity of ten feet high, ten feet wide and seventy feet long, and four double kilns with a capacity of ten feet high, eighteen feet wide and seventy feet long, would be ample. We will not attempt to describe the dry kiln itself, because this also, like the building, varies considerably, dependent upon the location of the plant, the kind of lumber to be handled, the quality of the ultimate product, etc. Suffice it to say that careful study of the dry kiln should be made. The type selected should treat the lumber in the most approved manner, removing the moisture in a uniform, even way, and leaving it in the best possible condition for manufacturing furniture. It is necessary to have a well trained man in charge of the dry kiln, with the necessary scientific instruments for determining the moisture content before the lumber is put into the kiln, at various stages in the drying process and at the end of the drying process, so as to assure uniformity of product.

### **Storing of Veneers and Other Raw Materials**

Next to the lumber, in the production of furniture, various types of veneers are an important raw material. Veneer is received in boxes or crates, and is placed on shelves in a storeroom by means of lift trucks. Here the temperature and moisture content of the air are reg-

ulated and uniformly maintained at the points desired. Other raw material, such as glue, various finished material, dowels, nails, screws, etc., do not require any particular handling, but should be stored in a stockroom and requisitioned as needed.

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## CHAPTER IV

### POWER PLANT

In most furniture factories the disposal of sawdust, shavings, cuttings, etc., is a primary source of power. Therefore, boilers are chosen with a purpose. The factory refuse must be burned under them, primarily as a method of disposal, and secondarily, as a source of power. The choice of the boilers and accessories for the power plant is also an engineering problem, which, like the building and the dry kiln, is decidedly dependent on many factors. It is customary to have excess capacity of boilers so that the plant need not be shut down because of failure of the source of power.

The boilers will produce steam, which, in turn, will operate either engines or turbines. Some prefer comparatively low pressure engines, others prefer high pressure turbines. The amount of steam required in every department of the plant has some influence in the choice. In either case, the prime mover, either engine or turbine, becomes the motive power which runs the generator that produces electric current.

#### Selecting the Motor

Modern practice for furniture factories dictates that this generator shall produce three phase, 60-cycle, 440-volt alternating current. Sixty-cycle is the standard acceptable frequency which best meets the requirements of woodworking plants. Electric motors which are built in directly on the cutting units of most woodworking machines require 3,600 R.P.M. motors, and two-pole, 60-cycle motors will give this speed, which is found to be correct for operating the greatest number of electric motors in any furniture factory. Certain types of machines, such as shapers, electric moulders, routers, etc., require higher speed motors.

The furniture factory, should have at least two frequency changers located in the power plant and arranged to pro-

vide 100-cycle current to operate certain motors at 6,000 R.P.M.; also to provide 120-cycle current to operate shaper motors at 7,200 R.P.M. Of late another frequency changer is being installed in some plants to give 145 cycles, which will operate electric motors at approximately 10,000 R.P.M., a desirable speed for routers and carving machines. All frequency changers should be direct motor-driven with motors coupled by means of flexible couplings to frequency changers and both motor and frequency changer mounted on a common base.

In the power plant will be located the panel board with all the necessary modern instruments to gauge the amperes and voltage of the power being delivered to any department, and also to insure the operation of the power plant as nearly automatic as possible.

### **Location of Air Compressors**

Air compressors necessary to provide compressed air for the plant are also properly located in the power plant. The size and type of this air compressor will depend on the amount of compressed air actually calculated to be used.

All other power plant accessories, as well as the various types of pumps, such as drinking water pumps, service water pumps, hot water and other pumps, should be located in the power plant under the direct supervision of the chief engineer.

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## **CHAPTER V EXHAUST SYSTEM**

No modern furniture factory can be operated without an exhaust system. The design, location and distribution vary. Exhaust or blower pipes with branches reaching to every machine, as well as to floor sweeps, are an important factor in the efficient conduct of any plant. The amount of machinery actually used in the factory, the distribution of the machines, the distance from the machines to the place where the refuse must be deposited, all affect the choice of the exhaust fans.

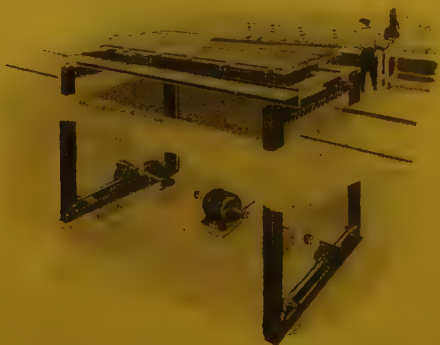
The main exhaust fans should be direct motor-driven and located conveniently to blow the refuse of the plant into the dust arrestors, which are usually located on the outside of the factory, directly above the shaving bins. It is the purpose of the dust arrestors to separate the shavings, sawdust and cuttings from the air, allowing the

air to escape and all other matter to be collected into the shaving bin, from where the conveyors take it to the boilers. Aside from the ordinary shavings and sawdust which go directly into the exhaust system, there is a large amount of cuttings and waste sticks in any furniture factory, which cannot be fed directly to the exhaust pipes. Such material is delivered to what is known as a refuse hog, which consists of a large revolving cylinder with many powerful knives rotated by a large motor directly coupled to the driving shaft. These knives cut up the factory refuse into very small pieces, which then are picked up by the blower system automatically and finally deposited into the shaving bins.

## CHAPTER VI

### CUTTING ROOM

The size of the plant and the amount of cuttings of exactly the same type determine very largely the method of feeding the lumber from the dry storage to the cutting room. If entire dry kiln bunks of lumber are to be cut up in one cutting, then this bunk is received from the dry storage on the lumber lift, which is a type of elevator suitable for handling loads of lumber. At the top of the lumber lift are two tracks on which the bunk of lumber is rolled, then by merely pushing a button the electric motors on the lumber lift will lower the load



**Fig. 1. Sectional View of Lumber Lift**  
(Courtesy, Leitel Iron Works)

until the top boards of the pile come in line with the tables of the cut-off saw, or the bed of the sizing planer, if that is used. As lumber is lifted off the pile, the machinist, by operating the control button of the motor either by foot arrangement or by hand, causes the lumber lift to come up, maintaining the top boards always on the level with the cut-off saw table, or the bed of the sizing planer. (See Fig. 1).

The lumber lift is a necessary adjunct in handling large piles of lumber. However, in plants of quality furniture, where the cuttings are small, the dry kiln bunks are divided into smaller units in the dry storage, according to the lumber bill for any particular cutting. The required amount of lumber of each size, type and kind is loaded



**Fig. 2. Straight Line Cut-Off Saw**  
(Courtesy Porter Machinery Co.)



on factory trucks in suitable small piles, and then taken to the cut-off saw.

Formerly, because of the careless sawing, lumber was extremely irregular in thickness. Therefore, all lumber in board lengths after dry kilning was first put through a sizing planer. This planer consisted of roll type of double planer for reducing the boards to an initial uniform thickness. Of late years, however, the lumber mills have gradually reduced the thickness of the boards and produce more uniform lumber. Therefore the initial sizing planer operation is now entirely eliminated. In modern furniture factories the lumber is sent directly from the dry storage to the cut-off saw.

### **Modern Cut-off Saw**

The modern cut-off saw is of the straight-line type with self-contained motor mounted directly on the cutting arbor. (See Fig. 2). At the touch of the operator's hand, the saw moves forward in a straight line cutting off the lumber which is held on the cut-off tables. Such tables are fitted with ball bearing rollers and at one side an automatic stop gauge; on the other side, a length scale. The cutter must be an expert in judging the lumber, in cutting out knots and in proportioning the lengths to be cut from each board, so that the waste may be kept at a minimum.

### **Straight Line Ripper**

From the cut-off saw the truck load proceeds to the straight line ripper. Formerly this was a piece of round steel located in babbitt bearing boxes with saw collars at one end, and a pulley at the other, mounted on a wooden frame, but today the modern straight line ripper has automatic feed consisting of endless chain actuated by a four-speed electric motor. The chain moves in a perfectly straight line at a uniform rate of speed up to 100 feet or more per minute. The saw is carried by ball bearing arbor, at the outer end of which is located a 10 or 15 horsepower motor. The movement of the saw motor and the feed motor is controlled by an operator. This machine, with the use of the power saw, will rip extremely straight, so that for core work the boards may be glued directly from the rip saw. (See Fig. 3).



**Fig. 3. Straight Line Ripper**  
(Courtesy, G. M. Diehl Machine Co.)

### **Continuous Feed Jointer**

A continuous feed jointer is the next machine in line. It is operated by three electric motors, one of four-speed type operating feed works, the other two either 3,600 R.P.M., or 6,000 R.P.M. (depending upon the kind of work), mounted directly one on each cutter arbor. The high-speed cutter heads mounted on the arbor will give either flat joint or V-joint, depending on the type of knives used. The operator, by turning the control handle, secures any of the four feeds depending on the length of the pieces that are fed through the machine.

### **Automatic Revolving Clamp Carrier**

After the jointer operation, work which is to be glued into panels proceeds to an automatic revolving clamp carrier. In front of this the pieces are first placed edge-wise on hot plates, kept continuously hot by a steam coil, or steam heated hollow plate. This heats the edges of the lumber. Operators take the work from the hot plates, run them over a revolving single roll type glue spreader,

arrange them in each section of the revolving clamp carrier, quickly clamp the various pieces together in straight form, and allow the panels to remain in each section until the entire circuit is made in the glue clamping machine.

### **Band Resaw**

A band resaw is also in the cutting room, and is used in resawing lumber into thinner sections when less than 4/4 stock is desired. It is the general custom to purchase lumber no thinner than 4/4 stock, measuring approximately one inch thick. Therefore, for certain panel work which requires thinner material, the stock is resawed on a band resawing machine. In the furniture factory this machine will carry saw blades of approximately four inches wide over wheels not less than 48 inches diameter. The arbors run in roller or ball bearings, have a slow-speed motor, usually 450 R.P.M., directly coupled to the lower wheel shaft.

### **The Straitoplane**

Formerly the truck loads of material from the rip saw, and the truck loads of glued-up panels, were taken to the hand planer and jointer, commonly called a "buzz planer."



Fig. 4. "Straitoplane" and Finishing Planer

Here one side of the stock was face jointed, and then these pieces were sized to uniform thickness in the roughing planer. In modern practice all this work from the straight line ripper and from the panel glue clamp goes at once to the "straitoplane", which is a machine recently invented. The two operations of face jointing and sizing are done simultaneously, once through the machine, so that the rough boards and panels which may be warped, or "in wind," are fed at one end of the machine and come out at the other end perfectly straight, planed on both sides, and of uniform thickness. In the first part of the machine, the feeding is done by cam-shaped, flexible, multiple-feeding fingers, which act like human hands, and feed the board without distorting its natural shape or contour. This assures a perfect face joint by the bottom head of the machine, whence the board proceeds and is fed by sectional rolls to the top head, which removes the excess material, bringing down the second side of the board perfectly parallel to the first side, thus obtaining uniform thickness. (See Fig. 4).

### **Finishing Planer**

From the "straitoplane", work proceeds to the finishing planer, which should be a roll-type double planer about 36 inches wide. It is the work of this finishing planer to take a thin light cut, approximately  $\frac{1}{32}$  inch on each side of the boards or panels. This leaves the lumber in a perfectly flat, uniform state, with the grain in its natural form, ready to go directly to the veneer room, or sanding room.

### **Progress After Cutting Room**

After the cutting room operations, all work which requires veneering proceeds directly to the veneer department. All solid work—that is, work not requiring veneering—goes directly to the final machining department. It is impossible in a limited space to describe in detail the various operations in these rooms. Therefore, a mere enumeration of the types of machines to be found in the succeeding departments of this furniture factory, follows together with short notations, to acquaint the reader with the modern features in each type of machine.

## CHAPTER VII

## VENEER DEPARTMENT\*

All veneer, regardless how carefully it is stored, naturally absorbs some moisture. Consequently the first machine of importance in the veneer department is the veneer redryer. In this machine the sheets of veneer are pressed between flat plates, steam heated by means of coils on either side. Periodically the pressure is released to allow the veneer to "breathe." In this process most of the moisture in the veneer is dried. This assures successful gluing of the veneer. The size of the redryer depends upon the size of the veneer sheets and the quantity of veneer to be handled.

**Veneer Clippers  
and Jointers**

A veneer clipper is used for straight cutting the veneer to the various widths and lengths desired. In general practice the veneer clipper is used only for cutting. Then the veneer is stacked, and taken to the veneer jointer.

The modern veneer jointer has a continuous traveling bed, which carries the stacks of veneer forward under uniform pressure. As they progress, high-speed revolving cutter heads with eight knives in each cutter head, one rough and the other finishing, are revolved by high speed motors, 3,600 R.P.M., cutting the edge of the veneer to a perfectly straight and clean jointing edge.

**Taping  
Machine**

Next in importance comes the taping machine. Veneer pieces which are to be matched are run through this machine while the tape is being glued, binding them together, and making the finished piece a desired width to be glued on the panels. The taping machine is adjustable and has self-contained motor-feed drive, which feeds the veneer at the proper speed while the tape is being glued.

Irregular shapes of veneer are band sawed in stacks to the desired shape. Sometimes stacks of squares and ordinary shapes are also band sawed, rather than put through a clipper. Ordinary 36 inch diameter wheel band saw is used with a 600 R.P.M. motor mounted directly on the lower wheel shaft of the band saw.

\* See Veneers and Plywoods.

The animal glue cooker is located in this room under the supervision of the man who attends to all kinds of glue. This animal glue cooker prepares glue for distribution to other departments using that type of glue.

## **Glues and Glue Spreaders\***

The type of glue used determines the type of glue convertor. No definite and positive rule has been established as to exact type of glue preferred. Animal glue, vegetable glue, casein glue, blood albumin glue, etc., may be used. The glue convertor chosen must be suitable for the type of glue used in the veneer department, and the convertor should be in duplicate, mounted above the glue roll, fitted with power agitator when necessary, and arranged so that the glue from either convertor will flow by gravity to the tank under the glue spreader.

The preferred type is a two-roll glue spreader. It has a motor for driving the rolls in a self-contained manner. On either side of this glue spreader are suitable tables, plates and trucks, which convey the various types of veneer and core stock.

## **Gluing the Veneer Panels**

In practice face veneer is laid flat, the cross banding veneer is run through a double roll which spreads the glue on both sides. The cross banding is laid immediately over the face veneer, the center core is laid over the cross banding. The second cross banding is run through the two-roll glue spreader which spreads the glue on both sides. This is laid over the central core, and over the top of this pile is laid the second face veneer or backing. Thus actually five different pieces are glued together, the first and the fifth being the outer or face veneer, the second and fourth being the cross banding veneer, and the middle or third piece being the core or central section. Panels of this kind, when properly glued together, are strong and durable; hence preferable for manufacturing high grade furniture.

\* See Page 363 for Types of Glues.

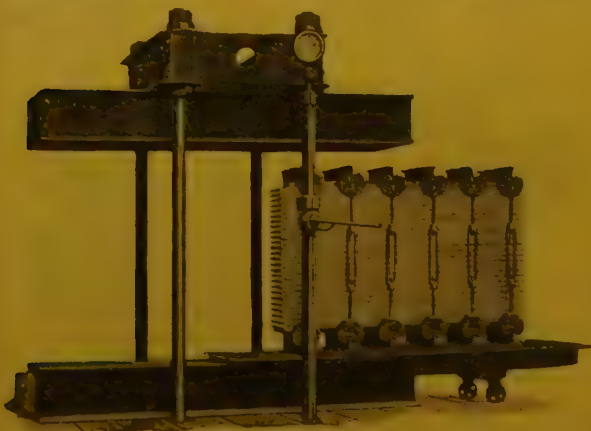
## Power Press

The stacks of glued panels are then taken to the power press, which may be either of the hydraulic type, or the electric motor-driven type. This press exerts great pressure on the stack, and while the stack is under pressure "I" beams and retainers for each bundle are mounted on it. When the binding nuts are drawn tight the bundle remains under practically the same pressure as in the press itself. The press is then released and the bundle is rolled out and allowed to remain under pressure a sufficient length of time to assure perfect adhesion between the veneer and the other units which make up the panel. (See Fig. 5).

Lift trucks are necessary to move these bundles of veneer cores to various parts of the veneer room.

After the pressure is released from the bundles, the panels are placed in the panel dry kiln for drying so that the sanding and finishing processes may be properly performed.

In the veneer department it is advisable to have several ordinary types of screw presses where small quantities of irregular and special stock are veneered. Veneering of swell fronts and curved material, can be handled in these



**Fig. 5. Hydraulic Power Press**  
(Courtesy, Farquhar Machinery Co.)

hand presses, and are allowed to remain in the press until dry.

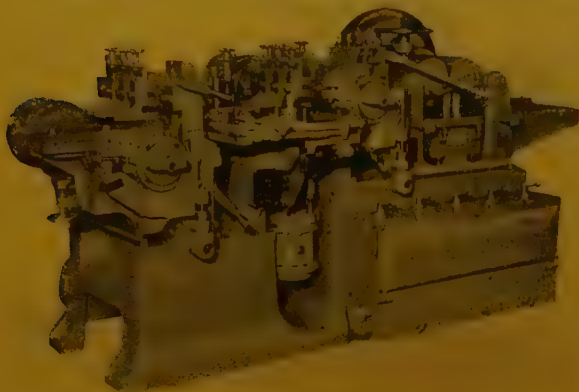
All work from the veneer department, as a rule, proceeds to the final machining department.

## CHAPTER VIII

### FINAL MACHINING DEPARTMENT

The 12-inch moulder is one of the first machines encountered in this department. Modern practice requires five electric motors to operate this machine. The top and bottom heads are run preferably by 6,000 R.P.M., 10 or 15 H.P. motors mounted directly on the cutter head arbors so that the ball bearings of the cutter head spindle also become the bearings of the motor. The two side heads usually have 5 H.P., 6,000 R.P.M. motors directly mounted. The feed motor is a multi-speed motor. A drum type control unit having a magnetic contactor and individual drums for all five motors are mounted on the moulder within easy reach of the operator. Where large quantities of the same type of pieces are run through the machine, hopper feed or an automatic feeding attachment keeps the machine fed constantly to assure maximum production. (See Fig. 6).

A second moulder, of either four or six inch size, direct



**Fig. 6. Electric Motor Driven Moulder**  
(Courtesy Vonnegut Machinery Co.)



motor-driven similar to the above, is used almost entirely for squares; that is, the central portions of legs. When they come out of this moulder they are perfectly square in shape and of required dimensions. On these are glued blocks to form the larger dimension stock where the shape of the turning, or the general contour of the leg, would require thicker pieces than in the other portions of the leg.

### **Hand Planer and Jointer**

A 16-inch hand planer and jointer, with five H.P., 3,600 R.P.M. motor built directly on the cutter head and fitted with a three or four knife circular cylinder, is used in this department for all odd work.

### **Modern Mitre Saw**

The modern mitre saw is of the tilting arbor type with a motor directly on the saw arbor and fitted with ball bearings. The entire motor unit, with the saw, tilts accurately to any desired angle while the top of the machine remains perfectly horizontal. For all general work a machine of this type is preferable to the old style tilting table mitre saw, because obviously when the work lies flat on the table the operator can handle it with the least exertion. Since the motor is built directly on the saw arbor, there is no more difficulty in driving the saw in any tilted position, than in a natural vertical position. (See Fig. 7).



**Fig. 7. Tilting Saw Motor-On-Arbor Mitre Saw**

## **Double End Tenoner**

The double end tenoner, as now used, is one of the most productive machines in a furniture factory. Formerly this machine merely did double-end tenon work with cope heads to do the under cutting or cope work. Now, however, this machine has been expanded until the most modern type, very lately designed, has not only the tenon heads, cope heads and cut-off saw attachment, but also dado arbor, shaping head, rounding and sanding attachments. All of the operating units have individual motors mounted directly on the cutting arbor. The feed motor works automatically, operating the feeding chains which have traveling rubber holddowns to assure uniform continuous production.

## **Double End Cut-off Saw**

Whereas the double end tenoner does much of the work, it is desirable to have a double end cut-off saw of the hand feed type on which to do the many small double end cutting off and trimming. This machine is fitted with individual motor in head saw arbors, one at each end. The machine is adjustable for almost any length or width of cut-off.

## **Modern High Speed Band Saw**

The modern band saw is decidedly a high speed band saw. It has 36-inch diameter wheels with ball bearings and a 900 R.P.M. motor built directly on the lower wheel shaft, so that the bearings of the motor and the bearings of the lower wheel become one and the same. The wheels should be of the disk type for better balance and for minimizing the effect of windage. Both wheels should be thoroughly encased or guarded, front and back, top and sides, and the path of the band saw blade should be covered, with the exception of that portion which is actually to do the cutting. (See Fig. 8).



Fig. 8. High Speed Disk Wheel Band Saw

### Jig Saw

The jig saw does all interior curved sawing. The modern machine is entirely self-contained, having a 1,200 R.P.M. motor directly connected with the lower crank shaft. All running mechanisms are enclosed in the column. The table is placed angularly to the upper tension column, so that the maximum size of panels can be handled on the machine. The vertically adjustable saw guide enables sawing stacks of work up to 3 inches thick with absolute accuracy and squareness. (See Fig. 9).



Fig. 9. Self-contained Jig Saw

## The Shaper

The shaper now built is a marvelous improvement over the old style shapers. The twisted belts, and other material, have all been eliminated. A high speed, ball bearing, 7,200 R.P.M. motor is now built directly on the shaper spindle where formerly there was a pulley. A push button electric start and stop station within easy reach of the operator gives perfect control of the machine, starting the ball bearing spindle almost instantly, and operating at 7,200 R.P.M. from the 120-cycle current.

At the former low speed of approximately 4,000 or 5,000 R.P.M. it was necessary to have double spindle shapers in order to cut with the grain and assure a smooth

cut. The modern shaper with 7,200 R.P.M. built-in motor will cut as smoothly against the grain, or across the grain, as with the grain. Therefore, more single spindle shapers are now in demand. If a number of shapers are required, possibly one double spindle shaper and three or four single spindle shapers would be a desirable proportion. (See Fig. 10).

### **Router or Rounder**

A router or rounder, with a powerful motor built in directly on the vertical spindle, is the modern heavy type router used. The compressed air-driven light type router,



Fig. 10. Single Spindle Motor-On-Arbor Shaper

giving spindle speed up to 20,000 R.P.M. if desired, is also used for light router work, such as lining, etc.

### **Hollow Chisel Mortiser**

The hollow chisel mortiser should be of the power feed type, having a built-in motor on the boring and mortising spindle, and also built-in motor for the feed works. The modern mortiser has quick adjustment for the number of strokes per minute, and also quick adjustment for the depth of stroke. For furniture work a machine with a capacity to handle hollow chisels up to one inch square is ample. Where dowel joints are used entirely the hollow chisel mortiser would not be required, but in larger plants, where almost any kind of design may be used, the mortiser is a good adjunct.

### **Horizontal Oscillating Bit Mortiser**

The horizontal oscillating bit mortiser, which will make very narrow mortises with revolving oscillating router bit, is an ingenious machine. This has a motor mounted directly on the router bit, and a motor to do the oscillating and feeding. Smaller mortises can be produced more readily by a machine of this type than by the hollow chisel type of mortiser.

### **Dovetailer**

A fifteen spindle dovetailer, directly motor-driven, is important, because all drawer sides of good furniture must be dovetailed on the front and back of the drawer. Without a dovetail joint the drawer soon becomes useless. The dovetailer is a valuable machine. It can make a dovetail more accurately than human hands, and, of course, more rapidly.

### **Hinge Mortiser**

The hinge mortiser is a comparatively new invention. This machine will cut out the exact thickness and width of space desired for the location of a hinge. It does the work accurately and rapidly. It is operated by a 1,200 R.P.M. motor mounted directly on the machine and chain connected to the operating shaft.

## Horizontal Boring Machine

A five spindle horizontal boring machine, with each of the spindles driven by an individual motor mounted directly on the boring head, is one of the latest machines which has caused a material saving in the boring department. It has a feed motor making a total of six motors to drive the machine and to operate by push button automatic control with low voltage protection and overload relay. This machine has power feed as well as power clamp, so that the operator may use his genius in setting up the machine and in handling the pieces. It does not require arm or leg power for clamping the work and feeding the stock. The spindles are adjustable sideways to bore holes as close as  $\frac{7}{8}$ -inch center to center. The side spindles are often furnished with vertical adjustment so that five holes variously located on the piece can be bored simultaneously. (See Fig. 11).



Fig. 11. Horizontal Full Automatic Boring Machine

## Rail Type Borer

A vertical six spindle rail type borer of any length desired to suit the longest pieces handled, is an excellent machine. Automatic feed to the table vertically and power to the spindles is furnished by one motor driving the upper power shaft. From this shaft, power is transmitted to the boring spindles as well as to the feed operating shaft. (See Fig. 12).



Fig. 12. Vertical Multiple Spindle Borer



## Single Vertical Borer

A single vertical borer is handy in this department, because, in spite of the multiple spindle boring machine, some odd pieces may often be bored to advantage by the single spindle borer. The modern machine has 3,600 R.P.M. motor built directly on the boring spindle, with ball bearing. It has a universal tilting table with deep throat from the center to the column. (See Fig. 13).

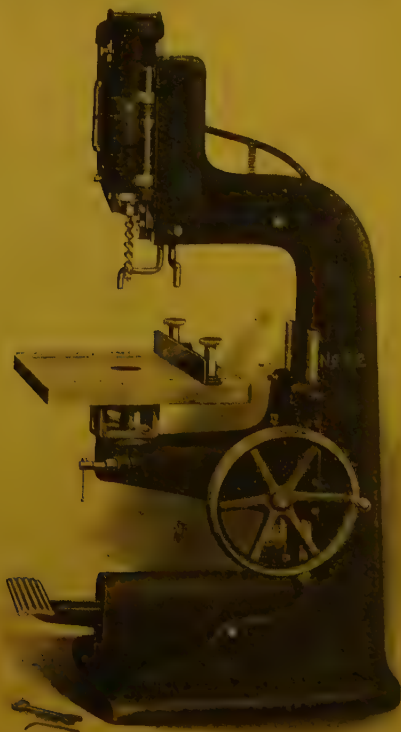
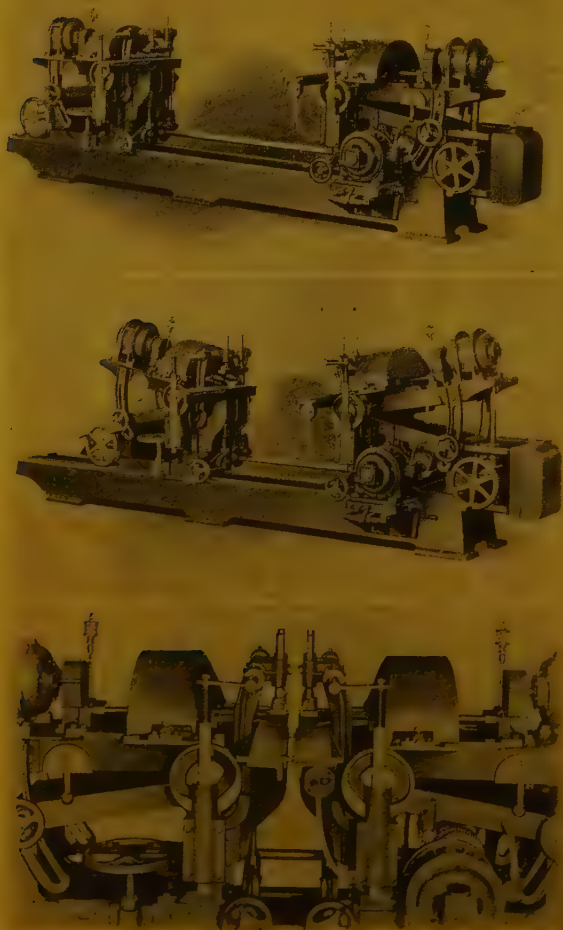


Fig. 13. Vertical Single Spindle Borer



**Fig. 14. Automatic Double End Boring Machine showing normal position for straight boring, tilted position for angular boring and close-up for short stock boring  
(Courtesy, The Bell Machine Co.)**

### **Double End Boring Machine**

A double end boring machine is also a new invention for this department. All work such as rails, etc., requiring boring at both ends, can be handled simultaneously. The boring at both ends is done automatically while automatic clamps hold the piece in place so the operator moves only the stock and plans the progress of his work. (See Fig. 14).

### **Dowel Glue Driving Machine**

Since many joints in furniture are now made of the dowel type, a dowel glue driving machine is good addition to this department. In this machine dowels of proper size, having previously been made and filled in the hopper above, automatically move in properly located slots. They are glued and driven into the holes in the pieces which are to be doweled.

### **Bed Post and Rail Machine**

The bed post and rail machine is employed for boring the holes and making the slots at each end of bed rails.



**Fig. 15. Revolving Block Clamp Carrier**  
(Courtesy, Taylor Clamp Co.)

or in bed posts, for the purpose of receiving metal hooks and pins that unite the bed rails to the posts. The modern machine has a vertical motor driving the boring bits, also vertical separate motor mounted on the arbor which carries the slotting or dado head. A machine of this type allows the handling of the bed rails horizontally, which is far more convenient to the operator than the old method of vertical handling in the belt-driven machine.

## **Block**

### **Clamping Machine**

A deep throat revolving clamping machine, used extensively, is called the block clamp. It is used for the purpose of clamping blocks around a piece of small cross section, so as to enlarge the cross section of the piece at the place where the blocks are clamped. This method is used especially in the case of turning legs, where a certain portion of the leg is materially larger than the remaining portions. (See Fig. 15).

The above group in general completes the equipment of the final machining department. It now remains for us to consider the special machining departments.

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## **CHAPTER IX**

### **CARVING DEPARTMENT**

The carving department is important for the manufacture of furniture having a considerable amount of carving.

Individual benches for the hand carvers, approximately eight inches higher than the average work bench, are a necessity. These benches should be fitted with some kind of locker in which the workman may keep his individual tools and other conveniences. The master carver makes tools for sample carving by hand, as called for by the designer's ideas. All carvers are artists in a true sense, hence it becomes necessary, as much as possible, to lighten the manual labor required of them.

## **Multiple**

### **Spindle Carvers**

Multiple spindle carvers are used for carvers duplicating the hand-carved samples. These machines can be furnished either with 8, 12, 16, 20 or 24 spindles, but they are most commonly used in the 12 spindle size. While the operator moves the tracer over the contour of the sample carving,

the 12 cutting spindles will cut into the blank pieces which have been clamped either between centers or on the flat tables, thus duplicating the artist's work. These multiple spindle carvers are operated by electric motors driving certain groups of the spindles. The most modern machines have a separate individual motor to drive each two spindles at a speed of about 10,000 R.P.M. The product of the multiple spindle carver is usually "touched up" or finished by master carvers, on the single spindle carver, by hand "touching-up." (See Fig. 16).

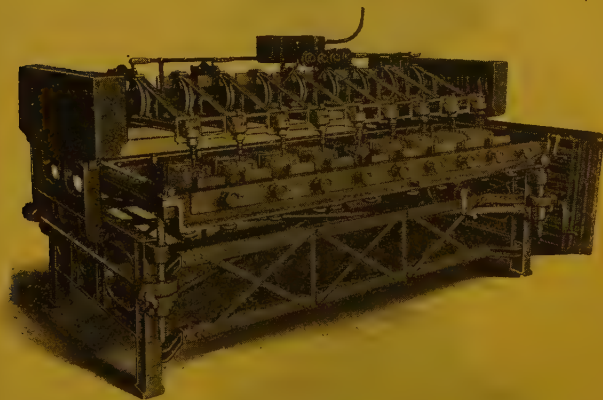


Fig. 16. Multiple Spindle Carving Machine working on heavily carved table legs

### Single Spindle Carvers

The single spindle carver has a high speed spindle, usually running at 10,000 R.P.M. or more, and can be equipped with 60-cycle motor either with a short belt driving the spindle, or with 160-cycle motor which will run the spindle at approximately, 10,000 R.P.M. On the outer end of this high speed spindle is mounted a small diameter cutting tool against which the carver holds the piece to be carved. He does this work in a free hand fashion, as the simple light touch of the wood against the cutter shapes it in the manner desired. (See Fig. 17).



**Fig. 17. Single Spindle Motor-On-Arbor High Speed Carver**  
(Courtesy, Porter Machinery Co.)

### **Spindle Sanders**

The spindle sander for the carving department is either a single-end or double-end machine. The proper speed for the spindle would be approximately 4,500 R.P.M. The spindles carry a compressed rubber chuck over the outside of which circular tubes of sandpaper are inserted and held by compression. The outer end of the sandpaper tube remains unsupported. While this sandpaper tube revolves, the operator holds against the outer end such

carving as must be sanded. Very smooth and quick results may be obtained by simply pressing the carving against the revolving tube of sandpaper. (See Fig. 18).



**Fig. 18. Double Spindle Sander**  
(Courtesy, Porter Machinery Co.)

### Air Routers

The air router is used in the carving department to make rosettes and similar furniture decorations, also to do some heavy cutting on certain types of carvings. The spindle of this machine usually revolves at about 20,000 R.P.M. without difficulty.

## **Carving Cutter Grinder**

The carving cutter grinder is an important adjunct. It consists of a motor with double-end extended shaft, one side of which is a grinding wheel approximately six inches diameter and  $\frac{1}{2}$  inch face, and at the other end of the spindle are usually four grinding wheels of various diameters, thicknesses and outside contours. On this machine the operator grinds the carving cutters to suit his own fancy and the type of carving attempted.

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## **CHAPTER X**

### **SANDING DEPARTMENT**

The sanding department is usually conducted separately under the supervision of a competent foreman who understands the technique of smoothing work from the final machining department to making it ready for the finishing department. Formerly human energy was wasted in monotonous motion of rubbing a piece of sandpaper over the work to be sanded. Master mechanical minds recognized the fact and as a result sanding machines of every sort and variety have been created which do the work even better than it can be done by hand.

### **Endless Bed Three Drum Sander**

The endless bed three drum sander is a necessity for all kinds of flat sanding. Because of the rubber-covered traveling bed, small pieces, odd-shaped pieces, as well as rectangular and large pieces can be fed through this machine while they are being sanded by each of the three revolving drums that are covered with sandpaper. The first one of these is the cutting drum, the middle is the smoothing drum, and the third is the polishing drum. Each of these drums is individually driven by means of a 1,200 R.P.M. motor built directly on the end of the drums. A separate multi-speed feed motor operated by means of a drum control gives different rates of feed as suited for the work at hand. The dust from all three drums is collected by a blower system.

### **Roll Feed Three Drum Sander**

The roll feed three drum sander is generally used for the sanding of frames and similar large pieces which



require sanding on one or both sides. In such cases the work is fed between rolls while the bed remains stationary. Sanding drums act against the work the same as in the endless bed sander.

### **Stroke Sander**

The stroke sander utilizes a revolving sand belt above the table on which the work is mounted. The operator moves the table back and forth while the sanding or polishing block makes automatic strokes forward and back, simulating the same action as if the hand sander would move the block back and forth. Sensitive adjustments and careful manipulation of the pressure result in very smooth polishing, and a great deal of work which goes through the endless bed sander is finally put through a stroke sander for extra smooth finishing sanding.

### **Hand Block Sander**

The hand block sander utilizes a revolving sand belt which is pressed by means of a hand block held in the operator's right hand on the back of the sand belt so as to cause it to come in contact with the piece to be sanded.



Fig. 19. Hand Block Sander for General Sanding

The work is mounted on the table which is moved to and from the operator over easy operating rollers or guide ways. A 900 R.P.M. motor is mounted directly on the drive pulley which revolves the belt. A machine of this type is important for all kinds of odd or "short run" work, which can be more easily sanded on a hand block machine. (See Fig. 19).

### **Moulding Sander**

The moulding sander is a recent invention. Narrow and thin linen back sand belts are first broken into various folds as needed by the type of moulding to be sanded. This moulding can be the edge of a table top, a long rail, or it can be strips of moulding before they are applied to the furniture. The form, which is a countershape of the moulding to be sanded, is so shaped as to receive the sand belt and to turn the sand belt into the shape of the moulding, thus creating a sanding form against which the piece of work that has moulding on the edge, or the moulding itself, can be moved by hand, causing perfect and smooth sanding of the exact moulding shape desired. The driving of the belt, and the table mechanism, are quite similar to those of the hand block sander and the stroke sander. (See Fig. 20).

### **Edge and Form Sander**

The edge and form sander is a necessity for sanding of edges and odd-shaped pieces. Formerly it was as-

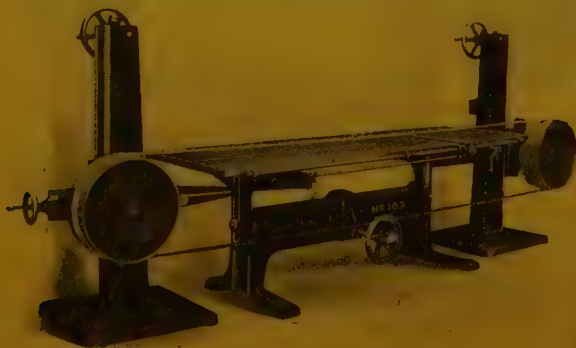


Fig. 20. Belt Sander for Sanding Mouldings

sumed that an edge sander must have the belt oscillate vertically while it was pressed against the work. The present practice is to use as long belt as possible, moved by means of two pulleys with vertical shafts and in a non-oscillating manner. Exhaust or blower hoods are necessary with this, as well as with other sanders. Various shaped forms, which usually consist of wood pieces band sawed to the shape desired and covered by means of felt and canvas impregnated with graphite or ground glass, are mounted at one end of the machine very readily for form sanding into difficult corners and shapes. A 900 R. P. M. motor mounted on the vertical drive shaft eliminates all belts, gears and other unnecessary driving mechanisms.

### Variety Sander

A variety sander consists of a driving pulley directly driven by motor, and an idler pulley together with form holders, jig holders, belt deflectors, small tables and other paraphernalia, all of which are intended to cause the sand belt to travel into almost any shape desired, so that irregularly shaped pieces may be sanded readily and uniformly. (See Fig. 21).



Fig. 21. Variety Belt Sander

## **Flat Belt and Disk Sanders**

A flat belt sander, or a disk sander, is used where perfect flatness rather than smoothness is desired. Work such as fitting drawer sides, or any other type of work where the unit is flat, may be handled either on a flat belt sander or the disk sander. The flat belt machine has a finished metal bed on the top of which the flat sand belt travels. This is supported at one end by the driving pulley mounted directly from the motor, and at the other end by an idler pulley. The disk sander has the disk of sandpaper clamped on a revolving disk, the spindle of which is propelled by a motor connected directly to it.

## **Oscillating Spindle, or Jig Sander**

The oscillating spindle or jig sander is important for the sanding of inside curves which are so shaped that they cannot be sanded on the variety machine. Drums of various diameters, covered with circular tubes of sandpaper, are held vertically, revolved and oscillated up and down, either in single or two spindle machines, while the work rests on the table and is pressed against these drums. (See Fig. 22).

## **Air Drum Sander**

The air drum sander consists of a double-end motor, at each end of which is a pneumatic sanding drum. It is made up of a large rubber tube held at two ends by means of circular retaining clamps and covered with canvas. These drums are mounted on the shaft and carry circular sandpaper tubes inserted over the drum. The drum is inflated by an ordinary bicycle pump to give the desired pressure. When work is held against it the air inside allows ordinary pressure of the work against the drum while the work is being sanded to perfect smoothness and the contour desired.

## **Scroll Sander**

The scroll sander is a new invention using a narrow and thin linen back sand belt which moves over a thin steel vertical form. Over this form, and resting on the table, is placed ordinary jig saw work, the inside edges of which must be sanded. The operator gently presses the work

against this narrow belt, which is supported by a thin and narrow steel form. Small and narrow corners and inside shapes can readily be sanded.

### Sand Belt

#### Cutting and Gluing Stand

The sand belt cutting and gluing stand is a necessity. This is usually made at the factory to support rolls of



Fig. 22. Oscillating Spindle or Jig Sander

sandpaper of various widths and types. These rolls are usually 50 yards long, hence they are cut into lengths and spliced either in a straight lap joint, diagonal lap joint, or by a zig-zag cutting form, into round belts. When very narrow belts are desired, the splicing is generally done in the wide form and then narrow strips are torn from the wide endless sanding belt.

### **Sponging Bench**

Another necessity in the sanding department is a sponging bench, where water which has been mixed with a minute percentage of glue is applied by means of a sponge over the work before it is sanded. This sponging and sizing operation raises the grain of the wood prior to the sanding, so that the sanders will leave the wood in the best shape for the finishing department.

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## **CHAPTER XI**

### **TURNING DEPARTMENT**

The turning department is among the important special departments in well organized furniture factories.

A hand turning lathe, the motive power of which consists of a motor which has taken the place of the ordinary headstock, is now employed. (See Fig. 23). On this the expert turner, by means of ordinary hand tools, such as chisels, gouges, etc., will turn samples and jobs or odd work, where comparatively few pieces are required. All general stock turning is handled by automatic turning lathes. (See Fig. 24).

Whereas in the hand turning lathe only the work revolves and the turner applies the single cutting tool against the work, in the automatic turning lathes both the work and the cutting tools revolve. The cutter head block, on which is clamped various shaped knives by means of knife holders, is the cutting unit in the automatic turning lathe. The outside contour of the knives when properly mounted in the cutting block is the counterpart of the shape to be turned. This cutter head block is mounted on a 3,600 R.P.M. ball bearing arbor, driven by a motor built directly on the arbor. In front of this cutting arbor is the work, which is supported between head and tail stock and revolves at a slower rate. The operator inserts the piece to be turned between the work centers and then by a handle, located away from the cutter head, swings

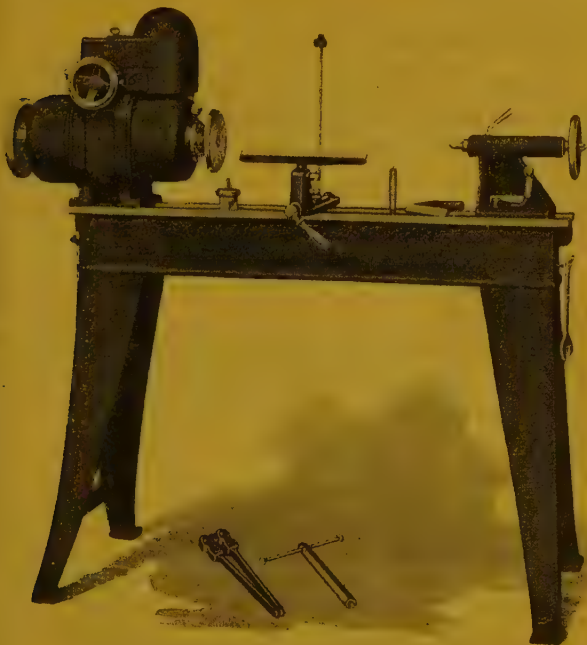


Fig. 23. Motor Headstock Hand Turning Lathe

the work towards the cutting knives, thus causing the revolving work to come in contact with the revolving cutters. In a comparatively few seconds a perfect turning is made. Usually the work revolves around three or four times while being cut. Then the operator swings the work back, removes the finished piece and inserts another.

### Automatic Turning Sander

An automatic turning sander is indispensable. The turnings are inserted between head and tail spindles which, while holding the work, begin to revolve. In the revolving path it comes in contact with strips of sandpaper which have been placed in the machine in such manner as to come in contact with the exact contour of the turning.

## **Fluting and Rope Twist Machine**

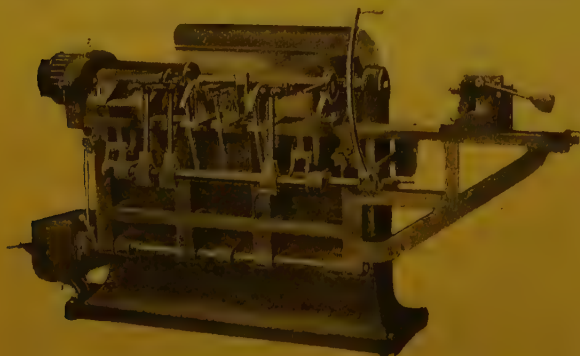
In the fluting and rope twist machine work is held between head and tail stock and moved longitudinally while it is being revolved in a twisting shape when twists are desired. The cutting is done by means of a cutter head revolved by a motor directly back of the work. Automatic stops at each end of the movement locate exactly the flute or twist which can be placed over the cylindrical or conical shape, usually after such shape has been blank turned on the automatic turning lathe.

## **Four Wheel Emery Grinder**

The four wheel emery grinder with motor head, which will carry four different shapes and sizes of grinding wheels, is a necessity to enable sharpening of the various types of knives and cutters used in this department.

## **Back Knife Lathe**

The back knife lathe is another automatic turning lathe in common use, especially for spindles and various forms of turning where deep sharp corners are not used. In this machine the work is held between high speed revolving headstock and tailstock while a knife of the shape desired operates on the work from the back, moving in and



**Fig. 24. Automatic Wood Turning Lathe, Motor Head**  
(Courtesy, Imperial Metal Products Co.)



out as determined by the contour of the work, governed from a master cam.

A small high speed lathe with a  $\frac{1}{2}$  H.P. motor head-stock of the variable speed type is often used for small sample turnings as well as for sanding of short run pieces or odd jobs. (See Fig. 23).

## Cutter Block Set-up

A cutter block set-up box and cutter knife racks are a necessity. The set-up box carries the cutter block on a spindle which is an exact duplicate of the spindle in the automatic turning lathe, allowing the operator to insert the knives in various shapes and twists and clamp them against the form which has been band sawed out to represent the exact shape of the turning.

## CHAPTER XII CABINET ROOM

Individual cabinetmakers' benches, having a square-faced wooden tail vise and a metal front vise with bench dog, are an absolute necessity.

Individual electric glue heaters are modern and used for handy pots by each cabinetmaker. These are now equipped with thermostatic control which will keep the temperature of the glue uniform.

## Four Way Stripping Clamp

A four way stripping clamp is effectively used to glue thin strips of facing on all four edges of tops and other pieces which have four edges carrying a different type of wood than the core. These clamps, at one handling of the work, will clamp the two pieces at the edge as well as at the ends and are carried on the revolving clamp carrier to save space and time.

## Case, Bed, Chair Clamps

A case clamp is intended for clamping the entire case, such as bureaus, chiffoniers, etc., after it is assembled and glued.

Bed clamps are used to clamp head and tail parts of the

beds in assembling the posts, the panels and the frame work.

Chair clamps are of two kinds. One clamps the entire backs of chairs or the entire fronts of chairs—that is, the legs and rails; the other clamps the entire chair frame, utilizing the front and back frames that have been individually clamped before, or utilizing all of the parts that go into the makeup of the chair frame and clamping them together.

## **Drawer Clamps**

Drawer clamps are intended for assembling and clamping all parts of a drawer in an accurate, square fashion, so that the drawer remains straight and all parts draw up tightly.

All of the above clamps were formerly made of wood, with various cumbersome parts difficult to operate. At present, however, they are made of metal with machined parts accurately fitted to the clamp unit, propelled either by a heavy screw and handwheel, or by a modern method of compressed air cylinder clamping. In this form a light touch of the lever with the foot or hand of the operator who operates the compressed air will draw the face of the clamp together and give the required pressure.

## **Frame and Hand Clamps**

Frame clamps clamp together various parts that make up the frames of mirrors and frames of all kinds. These frames can be square, rectangular, odd-shaped or artistically curved pieces clamped together. The unit parts are small and they must be handled gently.

Hand clamps and hand screws are indispensable. Formerly these were made of wood, but now a wood bar with metal ends, or thin light sectional steel bars with metal ends, are used effectively.

## **Revolving Oilstone Tool Grinder**

A revolving oilstone tool grinder, motor driven, having emery wheel, emery cone, as well as revolving oilstones for the sharpening of hand tools, is a necessary adjunct to the cabinet room.

## CHAPTER XIII

### FINISHING ROOM

The type of finish to be used and the method of handling determine, to a large extent, the equipment of the finishing room. Opinions on this vary, but most furniture factories have the following facilities:

Stain and filler vats or tanks are used for initial dipping, or big brushing on, in order to save time and insure coverage of all parts.

Spray booths are indispensable. These consist of large galvanized iron compartments. At the rear end is an exhaust fan arrangement diverting the fumes of the finishing material to exhaust piping which goes out of the building. The front end of the spray booth is entirely open. In the center of the floor there is a circular plate with a central vertical raising cylinder and foot control. On this plate pieces of furniture are mounted, the tops are sprayed and the pieces are then raised to the required height for the operator. It revolves before the operator, thus making every part of the piece easily accessible. Compressed air and tanks of finishing material and proper pressure hose connect these tanks to the spray gun. The operator, then quickly, uniformly and effectively spreads the finishing material on all parts of the furniture.

#### **Automatic Rubbing Machines**

Automatic rubbing machines which operate a rubbing pad with reciprocating motion over the parts to be rubbed, are in general use in modern furniture factories. Their purpose is to rub or smooth down the tops and other flat sides on furniture units after they have been finished.

Hand rubbing machines, consist of a little electric motor driven hand vibrator or rubber, which causes a reciprocating motion of the rubbing pad while the operator moves the small unit to any portion of the furniture to be rubbed.

#### **Drying Trucks**

Special drying trucks are made to suit the product which goes from the finishing room. Racks hold the piece with the least amount of contact, assuring separate holding of each piece. Complete circulation of air insures the quickest possible drying and enables the entire truck-

load to be moved away immediately from the spray booth or finishing stand.

Safety closed waste containers should be placed around the finishing room as a depository for filler soaked waste and rubbing material. These containers are a safety measure, as waste of this kind is inflammable.

### **Polishing Sander**

A polishing sander similar to the stroke sander or the hand block sander, is often installed in the finishing room, to be used in working down raised grain in the staining operation on certain types of work.

### **Hand Decorating**

A decorating department in connection with the finishing room is used for painted or gilded decorations on furniture. Real artists with smocks, easels, palettes, brushes, pigments and artistic dreams, constitute the important equipment of this department.

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## CHAPTER XIV TRIMMING ROOM

It is the work of the trimming room to mount the pulls, locks, mirrors and other accessories on the finished furniture before it is shipped. The trimming room should contain individual work benches for the men, individual electric glue heaters to assist in gluing felt strips, pads, etc., and each operator should be provided with a portable electric hand drill, also a portable electric screw driver.

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## CHAPTER XV TOOL ROOM

The tool room is a "necessary evil" in all furniture factories. Its product is never sold yet a tool room is an absolute necessity. In it are made, sharpened, and tempered all knives, saws and cutter heads. This room should be regarded as a part of the engineering department. Men best fitted to carry on the work of the tool room may not fit into the maintenance department, therefore, these two arms of the engineering department are conducted separately.

## Cutter Head Grinder

The cutter head grinder in the tool room should be of the universal type, motor-in-head, suited to grind heads and knives such as are used on moulders, shapers and other revolving units where cutters are comparatively short. They may be either of the inserted knife type or solid milled type.

A four wheel motor-in-the-head emery grinder is used for hand sharpening various types of cutters.

An automatic knife grinder of either the straight wheel or the cup wheel type is used to grind long knives for jointers, surface planers, "straitoplanes", etc. This machine usually has capacity for handling knives up to 36

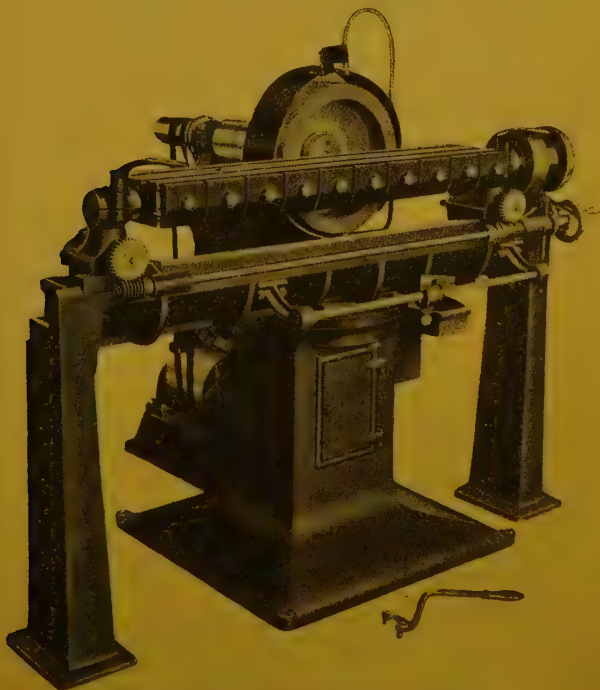


Fig. 25. Automatic Knife Grinder

inches long, receives either thin or thick knives and automatically sharpens knives to a perfect bevel and sharp edge. (See Fig. 25).

### **Circular Saw Sharpeners**

The circular saw sharpener is an automatic machine, motor driven, with automatic control of the sharpening wheel. It produces the exact saw gullet or tooth shape as if hand sharpening were done.

The circular saw setter is not a power driven machine. It is a clever device which holds circular saws in a concentric fashion and applies a uniform hammer blow on the tooth to be set.

A circular saw filing vise for hand touching up of the circular saws when they need not be thoroughly sharpened, is a handy tool.

A band saw filing and setting machine is automatic in action and will file band saw blades of various widths and lengths. It also uniformly sets the teeth.

Hand touching up is done with a band saw filing vise.

### **Band Saw Brazer**

A band saw brazer is indispensable. When band saw blades break, they should be perfectly brazed to assure uniform, accurate cutting. The modern type is an electric automatic brazer, which applies the heat and causes the braze without fire hazard.

### **Band Resaw Stretcher**

The band resaw stretcher is used for stretching the wide blades used on resaws to compensate for stretch of the blade at the front where the teeth are doing the work. The resaw stretcher also relieves any undue tension or cupping action that is placed on the blade.

Brazing clamps are used for resaws, wider than can be handled in the electric brazer. These consist of heat-applying blocks and a pressure-applying clamp unit to cause the proper braze.

Fitting up wheels for band saw blades are necessary to cause the blade to travel in a path during the process of filing and setting by automatic machines much the same as it would travel over the two wheels on a band sawing machine.

A tempering furnace, either gas or electric, tempers various knives and cutting units after they have been shaped.

Whereas the above units are the most necessary in a tool room, if the room is located at some distance from the maintenance department, then it would also be advisable to include a metal working milling machine, turning lathe, drill press and sensitive drill, to assist in the making of small cutters and cutter holders.

## CHAPTER XVI

### MAINTENANCE DEPARTMENT

This unit of the engineering department is charged with the work of not only installing all machinery, but of maintaining it in the proper operating condition. This work involves disassembling used machines or any part of machine for making repairs. In addition to this work the maintenance department produces special jigs and forms, and often makes cylinders and cutter heads for various machines. It makes special machinery for work peculiar to the type of furniture made, or peculiar to the method of conduct of the machine room and to conform with ideas of the machine room foreman. The following equipment is necessary in order that this work may properly be done.

Work benches with machinists' vises for each man in the maintenance department.

Engine lathe, (a metal turning lathe) approximately 18 inches in swing, and four or five feet between centers.

Drill press, of 20 or 24-inch capacity, for boring metal holes.

The milling machine should be No. 2 universal type, with all necessary attachments for cutting gears.

A metal planer. About 24x6-inch bed is the average size.

An arbor press for removing shafts from gears, cutter heads, etc.

A hack saw, for cutting steel into required lengths.

A double emery grinder, (a general tool sharpening and grinding machine), is used not only for sharpening tools but for smoothing corners on some finished work.

A blacksmith's forge and anvils and tongs, enabling quick forging of parts used in jigs, etc.

An electric heater, similar to an electric glue heater,

is useful in heating ball bearings to desired temperatures so they may uniformly expand a trifle to enable mounting them on shafts without pounding.

Jacks, chain blocks, rollers and other such paraphernalia are needed for moving machines when relocating is necessary; also when disassembling parts of machines.

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### CHAPTER XVII GENERAL EQUIPMENT

The shop equipment needed throughout the plant can be listed under the heading of lift trucks, platforms, factory trucks and time clocks. The number, kind and size of these units are dependent upon the size of the factory and the arrangement of the departments, type of building, etc. Factory trucks of uniform size and type often reduce the cost of maintenance, but special trucks suitable for various kinds of work may be more efficient and save space because they are easier to manipulate.

#### **Packing Room**

The total machine outfit for the packing room consists of four units of equipment.

A cut off saw, with the motor mounted directly on the arbor in a self-contained manner, will cut the packing lumber into the desired lengths.

The rip saw should be of the circular sprocket feed automatic type, so as to rip quickly to any width. If packing lumber is standardized and purchased dimensioned to the width used, then this machine would not be required.

Electric hand drill and electric hand screw driver saves time for packers and assures effective work.

#### **Shipping Room\***

The last operation in any furniture factory is shipping.

Hand trucks for moving the crates of furniture from place to place in the packing room; an automatic scale for indicating the weight of each box or crate; a stenciling machine with its marking pot for properly labeling each article shipped, a bill of lading machine for making out duplicate copies of bills of lading, and delivery trucks which take the shipment away from the factory when not shipped in carloads, constitute the total mechanical equipment of the shipping room.

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\* See Furniture Transportation.



## CHAPTER XVIII

## THE FUTURE OF FURNITURE MACHINERY

The advent of individual electric motors mounted directly on the cutter head units; the frictionless ball and roller bearings; the high speed steel for cutters and cutter heads, have given the basic units on which modern design of woodworking machinery is based. To the present time the individual machines with individual operations have been generally accepted. The advent of the "straitoplane," which does two operations of planing at one time, in face jointing and sizing the boards from the rough; and the advent of the modern double-end tenoner with its coping, rounding and sanding attachments, as well as the shaping, cutting off and tenoning operations, indicate that the next advance in the progress of furniture machinery will be toward designing and building machinery which will further relieve the furniture worker from muscular effort. The machine multiplies the muscle power of man, and the nearer a furniture machinery manufacturer reaches that goal, to that extent he will benefit mankind. Machine-made furniture is much better than hand-made furniture of the same design and material.

Machinery will never replace the artist in man. Machinery can never substitute the artisan's conception of the furniture unit, the beauty of design or his creative ability. All of these exist in the piece of furniture whether the boards have been sawed, planed, bored, sanded, mortised, tenoned and what not, by hand or by machinery. The chief difference exists in the fundamental that when a machine relieves the artisan from physical fatigue he can devote his mind to the beautifying of furniture.

It has not been our object to specify exactly what machines are used in the modern furniture factory, but rather to enumerate the types and kind. This will give to the reader an adequate idea of the multiplicity of equipment that has been devised and is now being used in the production of furniture.

The more physical operations which can be performed by machinery, the more furniture of beauty we shall have in our country and the more permanent comfort and joy shall we acquire from our homes.



## PART VII

# *Furniture Construction*

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# Furniture Construction

(*Compilers' Note*—It may appear to the student that parts of the following discussions are a repetition of material found under the classifications of Furniture Woods, Veneers and Plywood and Furniture Machinery, all of which enter into furniture construction. Where such repetitions have been necessary, they are made to apply directly to the process of making furniture and to aid the student in more readily distinguishing good and bad workmanship. It has therefore been necessary to repeat certain facts about lumber and the use of certain machines which have been more broadly discussed elsewhere. To obtain a comprehensive knowledge of furniture construction, the student should read all chapters referring to specialized subjects which come within the study.)

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## CHAPTER I

### BRIEF REVIEW OF PAST

Furniture construction, in common with all crafts, has developed in touch and in tune with a constantly advancing knowledge of methods. In this respect has furniture enjoyed a full measure of benefit from scientific progress. When iron supplanted stone as the substance for tools, the woodworking crafts received a mighty impetus. The sharper the edge of a cutting tool and the longer it remained sharp, the more time was afforded the craftsman in which to devote his energy to actual accomplishment. The more tools that came to his assistance, the more could he extend his skill and the more readily exercise his imagination. For, it must be remembered, that every piece of furniture we see or use was at one time the nebulous outcropping of some one's imagination.

Wood being of a destructible content, we have little by which to be guided as to how the ancients made their furniture. From our own experience, however, and from the experience of our more recent ancestors, we have a fairly good idea of the primitive methods of joining woods so that they remained joined. Many of the arts and crafts in woodworking, such as mortising, carving, joining, inlay and onlay were old when recorded history made its appearance. Where they came from we do not know. Works of art dating back into the most remote antiquity reveal a perfection and geometrical precision which cannot be improved upon today by the most highly adjusted machine. The potter's wheel was known to the earliest

Hittites, to the Cretans before the siege of Troy, to Babylonians and Egyptians. The chisel is one of the oldest tools known to man. Hence, to speculate as to how, when or where these facilities came into being would be futile.

Until within the present century, all furniture was made by hand. The artisan chiseled or hacked out his table legs, whether straight or cabriole, with his hands. He mortised joints and fitted them by hand. To strengthen supports and keep the construction firm he employed cleats and braces which also kept the product together. Then he perfected the whole by rubbing and sanding, by an elaborate and painstaking removal of all defects, to which he contributed a similar laborious process in painting, gilding or finishing.

## CHAPTER II

### METHODS OF USING LUMBER

To understand the making of furniture, it is necessary first to have some acquaintance with the lumber that goes into its manufacture. (See "Furniture Woods".)

The tree, after being cut into lengths in the forests, is shipped to a saw-mill where it is cut into standard dimensioned stock.

Lumber is measured in quarters. Lumber known as four-quarter is one inch thick in the rough. Five-quarter is  $1\frac{1}{4}$  inches thick, six-quarter,  $1\frac{1}{2}$  inches and so on. Lumber is sold by the board foot which is 12x12 inches square, four-quarter thick. All lumber is figured from this as a basis.

#### Air Drying

The lumber, after being sawed to stock sizes, is placed on sticks to air-dry. The time for air-drying varies with the condition of the atmosphere and also with the kind of lumber being dried. Sometimes lumber is not air-dried at all, but is immediately sent to a dry kiln.

The usability of lumber depends upon the structure and general properties of the individual kinds of wood. Wood is made up of cells—hollow spaces surrounded by walls—all grown together tightly like a honeycomb, with practically no space between the cells. This construction is responsible, to a large extent, for some of the advantages

and disadvantages of wood as compared with other structural materials and largely governs its properties.

### **Imperfections in Lumber**

Certain defects are sometimes found in lumber. These have been classified as follows: heartwood, season checks, splits, sap, knots, stain, burls, wane and poor sawing, known as mis-sawing.

#### **Heartwood**

Heartwood is sometimes rotted or discolored to the extent that it damages the board.

#### **Season Checks**

These sometimes become large enough to damage lumber.

#### **Splits**

Splits over six inches in length are considered a defect.

#### **Sap**

Bright sap is no defect, unless it is definitely stated in the grading rules of specific woods.

#### **Stain**

This is a defect, if it will not surface or plane off in dressing lumber to the standard thickness.

### **Miscellaneous Defects**

Other imperfections are burls with unsound centers, unsound knots, or knots of  $1\frac{1}{4}$  inches in diameter, wane or uneven edges, worm and grub holes and decay.

There are rules governing the number of defects or imperfections which are allowed in each grade of lumber.

### **How Lumber Is Graded**

The grade of a board is determined by the number of defects it contains of certain specified kinds. In general, there are four commonly used grades, as follows: firsts and seconds, Number 1 common, Number 2 common, and Number 3 common. Number 1 common lumber will have

more defects than firsts and seconds. Number 2 common will have more than Number 1, etc.

The grading rules of the National Hardwood Lumber association give in detail just what imperfections are allowed in each grade.

### **Results of Imperfections**

Naturally, the number of defects in a board have a decided influence on the amount of lumber clear enough for the outside parts of a piece of furniture, such as posts, bar rails, tops, drawer fronts, standards, and so forth. Because wood is subject to the defects mentioned above, the user must plan on a certain amount of waste from the rough board to the finished product. This varies with the grade. Firsts and seconds will average, on this basis, about one-third waste, and Number 1 common approximately one-half.

In cutting up lumber for use in a piece of furniture, one should know where the particular piece is to go; whether it is to be used for an outside or for an inside part. Then he should also know what imperfections are permitted for that part. For instance, a knot with an unsound center would not go into a post, while under certain conditions it might go into a cross rail. Large knots, checks or unsound lumber, should not go into core stock for veneered panels, as eventually they will show through or cause loose veneers. It is impossible to name all effects of lumber imperfections on the finished piece of furniture. It is the individual man's duty to know what is permissible, and he should see that no wood goes into the furniture that is not desirable for the purpose for which it is intended.

### **Lumber Wastage**

The lumber waste in furniture factories is usually figured as a percentage of the net footage of the finished furniture rather than as a percentage of the number of feet of lumber cut. This will average between 30 and 40 per cent, depending on the kind of work. These figures are based on the use of firsts and seconds with a small proportion of Number 1 common.



## CHAPTER III

## KILN DRYING

**Theory of  
Warping**

As stated in the preceding, wood is made up of cells—hollow spaces surrounded by walls. It is these cells that primarily interest the kiln man. They always contain moisture and it is the moisture that causes the swelling and shrinking of lumber. The kiln man's purpose is to rid the cells and cell walls of most of the moisture. In ridding them of the moisture certain problems are encountered, because the cell walls decrease in size in drying.

A board contains many thousand cells, and it can readily be seen that if one cell shrinks when it becomes dry the entire board must do likewise. The opposite is true also, if a dry board is moistened it will swell, or if it is moistened on only one side it will warp.

**Condition of Lumber  
When Purchased**

Lumber is generally purchased green or air dried. In the green stage, lumber may have a moisture content ranging anywhere from 30 per cent to 100 per cent, depending on the kind of wood. The moisture content is the weight of the water contained in a board as compared with the weight of that board when bone dry. If a certain amount of lumber weighs 155 pounds, whereas it only weighs 100 pounds when perfectly dry, it is evident that 55 pounds of the original weight is water and its moisture content is said to be  $55/100$  or 55 per cent. Air dried lumber may also contain a varied amount of moisture, dependent on the amount it contained in the green stage, and also on the length of time it was air dried. Air dried lumber is cheaper to ship for it is not as heavy as green lumber, but air drying has many disadvantages compared with kiln drying the lumber green from the saw.

The cells shrink when they become dry, but this shrinkage does not occur until fiber-saturation point is reached. Fiber-saturation point is that stage at which all free water is out of the cells and only the cell walls are wet. This is the stage where air drying may do harm. The outer cells become dry first while the inner cells remain above fiber-saturation point, which is between 18 and 25 per cent. This inequality is the drawback in air drying. Nature's methods of drying cannot be relied upon on account

of the various climatic conditions, wet and rainy one day while the next may be hot and dry. Dry kilns have been constructed in which the temperature can be controlled to suit the best drying schedules developed. Therefore, many kiln operators prefer drying the lumber green from the saw so they may watch it at all times instead of trusting to contrary atmospheric conditions supplied by nature.

### **Condition of Lumber Manufacture**

The manufacturing of good furniture requires primarily that the wood used shall contain a certain amount of moisture, also that it be free from stresses, which will be explained later. The proper moisture content may vary in different localities, but generally speaking, if the wood is dried to four or five per cent moisture content, based on the oven dry weight, and is fairly free from stresses, it will take on a little moisture and thus temper itself according to the surrounding air.

The lumber may be dried to this condition in a dry-kiln, of which there are many types; but the final tempering is not always done in the dry kilns, although it does the work most rapidly. Sometimes, due to the rush of business, the kilns cannot be spared for that purpose. Tempering rooms having a temperature of approximately 120 F. and 35 per cent relative humidity, are the next best method. The last, which is better than no drying, is to pile the stock on sticks in the factory for a period of from 7 to 14 days. Relative humidity is a measure of the amount of moisture in the air. If the air contains all the moisture it can possibly hold, the relative humidity is said to be 100 per cent; if it contains only half this amount of moisture, the relative humidity is 50 per cent.

### **Results of Improper Drying**

The results of improper drying are many. In fact, all the advantages of making furniture from properly dried stock can not be appreciated until one has changed from one to the other. Improperly dried lumber often makes considerable waste due to checking, warping, honeycombing, etc. It also pinches the saws, and frequently warps before the final assembling, when it is difficult to repair.

### **Important Factor in Kiln Drying**

The important factor in kiln drying is not in the kiln nor in the equipment, which may be automatic and polished to the last detail, but in the operator. It is said an experienced operator may do good work with a poor kiln, while an inexperienced operator may turn out inferior work with the best kiln and equipment.

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## **CHAPTER IV**

### **MODERN FURNITURE CONSTRUCTION**

Furniture construction is a subject to which the public, much to its own loss, pays little attention. It is primarily technical and does not convey the romance which surrounds styles and decoration. Furthermore, most of the construction in a piece of furniture having joined surfaces, posts, arms and legs cannot be seen by the purchaser. Hence, this, one of the most essential facts to know about furniture, resolves itself either into a hidden value or hidden defect.

It would be impossible to present, in a single review, a complete picture of how furniture is made. Such a presentation would require several volumes. We can therefore point out only the essential advantages and disadvantages in methods and types of craftsmanship.

### **Maintaining a Balance**

A board well dried and prepared for manufacturing will stay flat only so long as stresses and strains are maintained in balance. In solid wood, furniture often shows seriously warped parts.

Solid wood cannot be economically or successfully made into curved surfaces. Either many joints will show, or end wood will be exposed (finishing dark in color). Even the curve constructed with much care will be weak and will break easily. On the other hand, thin sheets of veneer may be bent into forms while glue is plastic, and the resulting curved shapes, when glue is dry, will be strong and show a beautiful figure. (See Fig. 1 for form for bending).

Many pieces of furniture require curves, such as bed ends, sewing cabinets, vanity fronts, desk tops and the like.

## Laminated Construction

The laminations in wood add greatly to its strength. Normally, wood has greater resistance to breaking lengthwise than crosswise. If adjacent layers of veneer are glued together with grain at right angles, strength in both directions is equalized. If more plies are added, the resulting

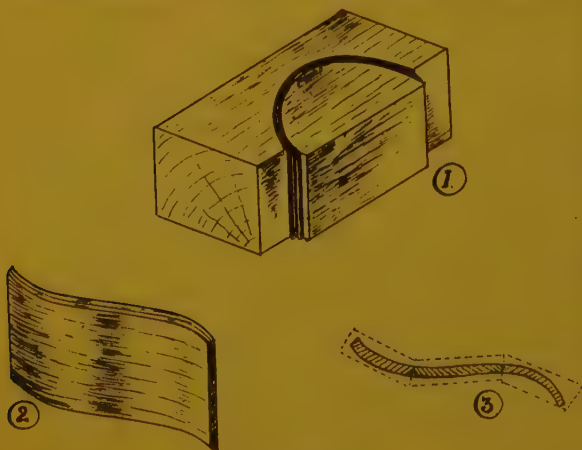


Fig. 1. Form for bending veneers.

Figs. 2 and 3. Plywood curved forms.

plywood is stronger in any direction than solid wood in its strongest direction, i.e., with the grain\*. (See Figs. 2 and 3).

## Construction of Vital Importance

The construction of furniture is of vital importance. Many furniture factories employ graduate engineers to look after this phase of the work. They are employed because of their technical knowledge of the strength of wood, the action of moisture and temperature upon wood and also their understanding of structural designing.

Frequently, the rod maker or detailer will have to

\*See "Veneers and Plywood".

change the design so as to be able to put more strength into needed parts. The construction of an occasional table or odd chair does not need to have the rigid heavy-duty construction of office furniture. There are many kinds of construction that are considered good in one type of furniture and unsatisfactory in another.

### Joins and Joining

Good joints are essential to the utility and durability of furniture. When furniture, no matter how beautiful, comes apart and breaks down, it becomes useless and its beautiful finish will not mean anything in holding the piece together.

Furniture must not only appeal to the aesthetic sense, the love of beauty, but must also appeal to utilitarian reason and a desire for useful service.

The quality of construction is for the most part hidden. Usually, one cannot tell the type of a joint by looking at the finished product. This is true insofar as it concerns both retailer and consumer. The manufacturer alone knows the kind of construction which goes into his furniture. The retailer must please his customer. He cannot risk his reputation in buying furniture which has been poorly constructed. Therefore, the retailer should choose as sources of supply, furniture manufacturers with unquestioned integrity and responsibility. Such buying practice will eliminate trouble and dissatisfaction.

Joins and joining is a subject for serious study. Dowels, a most important type of joining, consists of small wooden pins used in jointing one piece to another. They must fit securely into the dowel holes of the members being joined; otherwise the joint becomes loose.

### Value of Good Joints

A certain factory was having trouble with chair legs becoming loose and was not able to locate the cause until



Fig. 4. Steel dowels.

one day it was discovered that the dowel pins were kept in a damp place where they swelled and had to be

forced into the dowel holes. After the piece was in use the dowel dried out and shrunk, and naturally the joint became loose.

The kind of dowels and their shape have much to do with the strength of the joint. (See Fig. 4). This figure illustrates steel dowels and screws—nothing more or less than nails that should never be used. Screws are superior to nails, but are not to be compared with the wooden dowel. They are seldom used in good furniture. Fig. 5A is an illus-

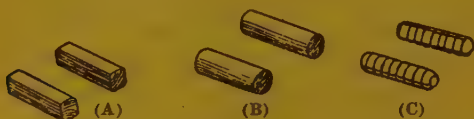


Figure 5.

Fig. 5A. Square wooden dowels.

Fig. 5B. Smooth round wooden dowels.

Fig. 5C. Spiral grooved wooden dowels.

tration of square dowels used in a piece of furniture. Only the edges of the square dowel touch the holes and, therefore, they prove unsatisfactory and should never be used. Fig. 5B is a smooth dowel. This is better, but there is greater danger of a "starved joint" by the dowel forcing the glue and air to the bottom of the dowel hole. Fig. 5C is the dowel spiral grooved and also longitudinal grooved to receive the glue and allow the air to escape. These dowels are pressed in and when the glue starts to set the wood expands and makes a perfect fit. Dowels must be kept at a certain moisture content so they will not swell, crush the piece, or shrink and make the joint loose. A well made dowel joint is as satisfactory a joint as can be used in the manufacture of chairs.

## Tempering the Wood

Lumber is taken from the kiln and placed in the store room to cool and temper before making it into furniture. Tempering the wood is allowing it to equalize any strain put upon it by the kilning process and also allowing it to absorb the normal moisture of the atmosphere of the factory.

## **Rods and Cutting Bills**

When chairs are to be made, a design is sent to the designing room where rods and cutting bills are made. These rods and cutting bills are then sent to the cutting room. The first operation in the manufacture of any piece of furniture is cutting the lumber into rough lengths, which are usually one inch longer than the finished length.

The cut-off saw operator takes the cutting list and learns how many different lengths there will be in the piece. For instance, in making a chair there may be front rails, back rails, side rails, front legs and back legs, all of different lengths. Guided by these various lengths, lumber may be cut more economically. The cut-off saw guides the length of the board with a number of "stops" which can be set at any desired distance from the saw.

## **Process of Sawing**

After the lumber is cut into rough lengths, it is placed on a truck and taken by a lugger to the rip saw. The rip saw first cuts off the uneven edges and then rips the board to the required rough width. No attempt may be made to rip rails to proper width when the material first comes to the rip saw, but the stock may be matched to a gross width sufficient to cut three, four or five rails without waste. After these matched pieces have been jointed, glued into a single piece and planed, they are returned to the rip saw to be ripped in proper widths for single rails.

It is also economy for the rip saw operator to cut several different widths, for, in this way, he may rip narrow pieces from boards from which he could not get wide pieces without imperfections.

The cost of lumber going into a given piece of furniture is practically determined at the cut-off and rip saws. A good cutter or ripper can easily save in lumber the amount of his wages, and likewise a poor cutter or ripper can easily waste that amount.

It is a matter of judgment with the cutter whether he will cut out all imperfections or leave some for the ripper to "rip" out. A small imperfection near the edge or a long narrow imperfection might be ripped out with less waste than if the cutter attempted to do it. To get best results, there must always be close co-operation between

the cutter and the ripper. Often imperfections will get by the cutter which might spoil the whole piece if it were ripped in that length, whereas it can be sent back to the cutter, cut into shorter lengths, and then ripped with very little waste.

### Removing "Wind or Warp"

After the pieces for the chair are ripped to the rough lengths, they are taken to the buzz planer, where the "wind" or "warp" is taken out of the boards by planing one surface absolutely flat. This machine is fed by hand or by an automatic feeder. From the buzz planer, the pieces that are to make up the chair seat (if the chair is to have a solid seat) are sent to the glue jointer. This machine planes the edges of the boards so they will fit perfectly together. It also spreads glue. From the glue jointer they are taken to a large revolving clamp where they are clamped together to form the desired width. Chair seats usually stay in the clamp from two to twelve hours, depending upon the strain that is to be placed upon them in the finishing operations and in use.

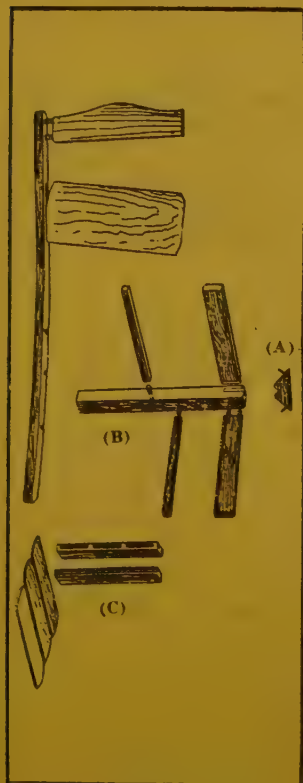
The pieces that are to be made into frame rails are next sent to the surfacer where they are planed to the true width and thickness. From the surfacer they are sent to the mitre saw where they are cut to true length. If the chair legs are slanted or if the chair seat is not perfectly square, the angle of the ends of the rails are sawed by the mitre saw. The rails up to this time are the proper width and length with the proper angle on each end. From the mitre saw the rails go to the boring machine where they are bored for the dowel pins. The question of the number, size and length of the dowels is an important one. If a manufacturer wishes to cheapen his furniture, he will only put in one dowel. If he expects to make strong furniture he will put in two dowels, if possible. These boring machines are usually two-spindle automatic machines.

At the time the machine is set up for the boring of the rails it is generally used to bore the legs of the chair so that the holes in the legs will absolutely coincide with the holes in the rails. The chair rails and legs are then sent to the shaping machines if there is to be any special shape to them. From the shaping machines, (band saw, jig saw, shaper) the pieces are taken to the sanders where they are sanded perfectly smooth. There are several varieties of



sanding machines for different kinds of sanding. From the sanding machines the pieces are sent to the chair makers. (See "Furniture Machinery".)

In some factories the chair makers are called assemblers.



**Fig. 6A.** Corner blocks are essential to a strong, well made chair.

**Fig. 6B.** Double dowel joint, and on opposite side a mortise and tenon joint.

**Fig. 6C.** Two types of joints on the seat of a folding chair.

**Fig. 6.**

As a usual thing, one man assembles the fronts of chairs, another man the backs, and another will put the fronts and backs together to form the complete chair.

## Corner Blocks

After the chair is glue together, it is taken to a workman who inserts the corner blocks. Corner blocks are essential to a strong, well made chair. (See Fig. 6A). Some manufacturers cheapen their chairs by not using corner blocks. The buyer may readily detect this in chair construction.

If the chair is to have a solid seat, such as office chairs, it is advisable to fasten the seat to the chair rails with small iron clamps or by screwing the rails directly into the boards of the chair seat. Some chairs are cheapened by having a small dowel in the tip of the chair post going into the chair seat. In such chairs the side rails under the seat are merely faked. They have no connection with the legs of the chair but are merely put on the chair for appearance. This is the kind of deception which is hard to detect in the finished product.

## Chair Mortising and Jointing

Fig. 7 shows parts of a chair put together. This illustration is used because of the statement made that one cannot tell the type of joint by looking at the finished product.

Fig. 6B is an illustration of the same pieces but with the joints separate. Note the joint at the top of the chair leg showing on one side a mortise and tenon joint and on the other a double dowel joint. The corner blocks are also shown above. At the lower part of the illustration will be noted two types of joints on the seat of a folding chair. (See Fig. 6C). This is a type of continuous groove which is the easiest made and also the weakest in construction. The lower lip will sooner or later break off. The second type has three separate mortises—more expensive to make and also much stronger.

If the chair is to have an upholstered seat it is then sent to the upholstering room. (See "Furniture Upholstering".)

## "Building Up" Legs and Posts

In the building of chairs, tables or case goods it is often necessary to build up the legs or posts. Posts or legs must first be built up by gluing on blocks to give enough

wood from which to work. If it is a round or regularly shaped leg, it next goes to the Mattison Lathe. In this lathe the leg revolves the same as in an ordinary hand lathe but more slowly and the cutting is done by means of revolving cutters which are ground and set to give the required shape to the revolving leg when it is pushed



Fig. 7. Illustrates parts of chair joined together.

against them. The turnings must then be sanded. This can be done on an ordinary hand lathe but a machine has recently been built which takes the pieces about as rapidly as they can be centered, sands them with coarse, medium and fine sand cloth and then automatically drops them.

If the leg or post is of irregular shape, so that it cannot be turned on the Mattison Lathe, it is first cut as nearly as possible to the correct dimensions on the band saw by following lines which have been drawn by pattern. It then goes to the shaper.

After the leg is shaped or turned it is cut off to length and then it is either mortised for frame rails, bored for

dowels or grooved for panels depending upon the construction of the piece of furniture.

Every piece has its own particular list of operations which must be performed upon it. Even on the same piece the operations might be changed considerably and still obtain the same results with very little difference in expense. The examples given above simply illustrate the operations that may be performed on the pieces as they pass through the mill and machine rooms.

## CHAPTER V

### TABLES

In the making of tables, the legs, rails, and stretchers follow the same course as outlined in the making of chairs. The table top is the only new process to be discussed.

Table tops, bureau tops, ends and all wide pieces that are composed of more than one part pass through the same process. After the top or part has been cut to gross length and width, that part composed of several widths of board which must be glued together to give the required total width is taken to the buzz planer.

#### **Treatment of Boards**

The buzz planer takes out any "wind" or "warp" that the boards may contain, giving an absolutely flat surface. The machine is composed of a flat table, with a wide revolving knife set across the middle. The boards are fed through by hand or by an automatic feed composed of many small spikes which rest on top of the boards and pull them over the table and across the revolving knives. It would not be possible to use heavy feed rolls on this machine because they would flatten out the warped boards, which, after passing through the machine, would spring back into their original shape and leave a curved rather than a flat surface.

After leaving the buzz planer, the boards which are to form the table top next pass to the jointer. This machine cuts the edges of the boards so they will fit together perfectly when glued. The boards are fed through the jointer on edge by means of a chain feed. The cut is made by a revolving cutter. If a flat plain edge is wanted the knives in the cutter must, of course, be flat. If a tongue and groove joint is wanted, it is necessary

to use two cutters which can be set up, one on each side of the machines. In this case the board is fed in from one end and passes over a cutter shaped to cut the tongue. At the other end of the machine another operator turns the board over and feeds it back into the machine so that it again passes over the cutter. (See Fig. 8.)

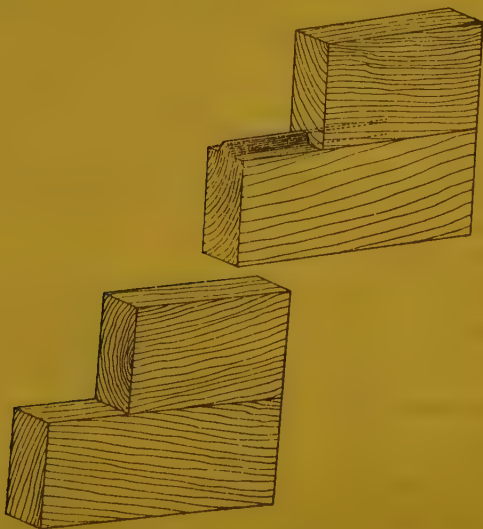


Fig. 8. Upper is a tongue and groove joint. Lower, plain edge.

After jointing, the parts which are to make the table top are glued together into one piece and allowed to dry.

The next operation is planing with the double surfacer. The double surfacer planes both sides of the table top and cuts it down to the thickness desired.

### Jointing

One edge of the top is now jointed in order to produce a perfect edge from which to square the others. This jointing operation may be done either on the glue jointer described above or on a machine feed rip saw. On the latter machine, the operator must start the piece in the machine "by eye," but once started, the feed holds the

piece firmly in position and the cut is always absolutely straight.

### **Final Dimensions**

The next operation is to cut the top to the proper length. This is done on the double cut-off saw, a machine composed of two circular saws which can be set at various distances from one another. As the top is fed through the machine, each saw cuts off one end, and the distance between the saws determines the length of the top. In placing the top in the machine, the jointed edge is placed against a guide so that the saw cuts will be perfectly square with this edge.

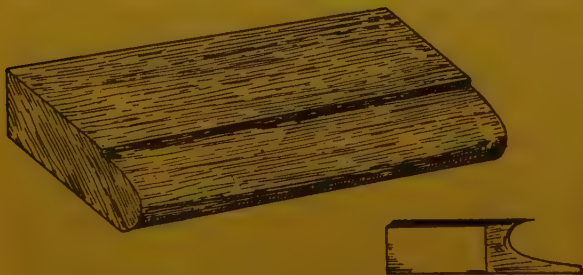
The top is now taken to a rip saw such as has already been described, where it is ripped to the net width.

### **Finishing the Edges**

If the top is to have square edges, it is taken to the edge sander. Where mouldings are to be sanded, it is necessary to use a cloth belt. A table acts as a rest for the piece to be sanded and if kept flat on the table, the edge will be sanded perfectly square.

### **The Moulded Edge**

If the top is to have a moulded edge, it travels from the rip saw to the shaper. The shaper is a revolving cutter set upright and projecting above the surface of a flat table. The form of the cut to be made is determined by the shape into which the knife of the cutter is ground. (See Fig. 9). There are certain places on the cutter head



**Fig. 9. Moulded edge.**

that may be used as a guide to determine how deep the cut is to be made. When straight, regular cuts are to be made, the edge of the top itself can be used to guide against the cutter head; but when irregular curved cuts are desired, it is necessary to place the top in a specially shaped frame or shaping pattern, which is used to guide against the cutter head and thus determine the curve that the cut will follow. By using special cutters and special patterns, any shape whatsoever may be obtained.

### Sanding

The top is now removed to the machine sander. This machine is composed of several rolls (usually three), covered with sandpaper. These rolls are constantly revolving and the pieces to be sanded are fed under them. The first roll is covered with a coarse paper, the next with a finer paper, and so on.

The piece now reaches the belt sander for final sanding. This sander is composed of a belt of sandpaper revolving

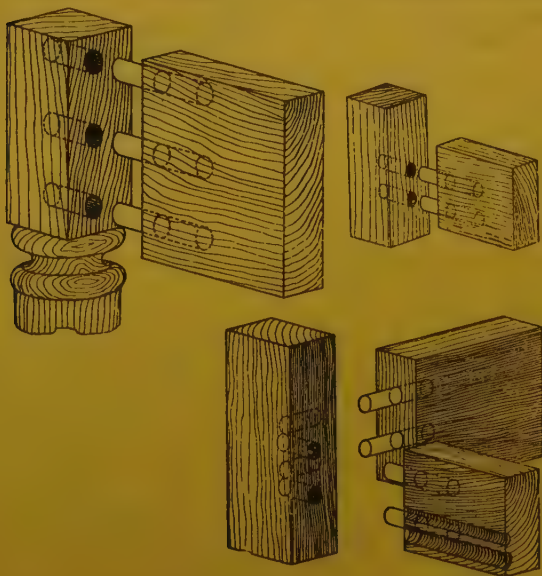


Fig. 9A. Dowels "staggered" to give greater strength.

around two pulleys at either side of a wide table. On some machines a "presser foot," which automatically moves from one side of the table to the other, is used to press the belt against the piece to be sanded; on other machines this is done by means of a wooden block held in the hand of the operator.

### **Veneered Tops**

The operations which must be performed on a veneered top are practically the same as described above through the operation of double surfacing. The top is now sent to the veneer room to be veneered and, after drying, is joined, cut to length and ripped to width, the same as is done with the solid top. (See "Veneers and Plywood"). It is then sent to the edge sander or shaper, but the operation of machine sanding is frequently omitted in some factories as the machine sander may cut through the veneered surface.

### **Jointing End and Side Rails**

The method of jointing end rails and side rails to the legs or parts is shown in Fig. 9A illustrating the dowels "staggered" so that full length dowels may be used in all cases.

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## **CHAPTER VI**

### **CASE GOODS**

Under the heading of case goods is considered radio cabinets, bureaus, vanities and pieces of like nature. In the making of case goods there is more chance for cheap construction than in any other kind of furniture.

The drawing of a partially made vanity case is shown in Fig. 10. The legs, top and the end panels of this case are made as described in the review on tables. The cabinets for the drawers, on each side, are framed with solid frame work above the drawers, between the drawers, and below the drawers. These frames are made with tongue and groove joints, with three-ply veneer panels to add stiffness and also to act as dust bottoms. These frames are "dadoed" into the ends, making for rigid construction. The panel ends of the case are dadoed into the legs. The back of this case is doweled into the legs instead of being nailed. Nailing or screwing backs on case goods cheapens the product, does not give a finished appearance



and does not serve as well or as long as jointed construction.

The shelf of this case is held in place by three dowels instead of being screwed on to a small strip under the shelf. Three dowels will keep the shelf from warping, will stiffen the case, and produce a better appearance.

## Radio Cabinet

Special points of good construction in this cabinet (Fig. 11) are that the shelves are dadoed into end panels and

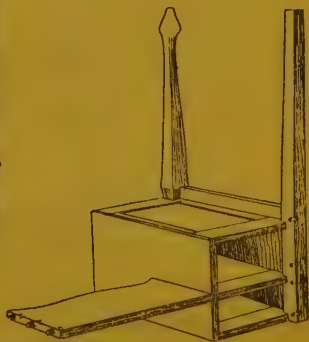
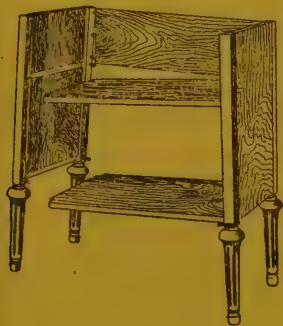


Fig. 10. (Lower) Partially made vanity case.

Fig. 11. (Upper) Illustrating shelves dadoed into each panel and also doweled into legs.

also are doweled into the legs. By doing this, the shelves "lock" the legs to the end panels and make a framed-up construction that will not easily come apart. The ends are built like the ends of the vanity case. (Fig 12). The back of this case is doweled into the legs.

The posts of this cabinet are one continuous piece of walnut from top to bottom. These posts might have been cheapened by the turned part of the post being fastened onto the case by a small dowel. The fault of this construction is that if the dowel turned on the leg does not have exactly the same moisture content as the post on the cabinet, the dowel will become loose when the cabinet has been put into service and the different parts have a chance to dry out or swell to various sizes.

## CHAPTER VII

### DRAWER CONSTRUCTION

In the making of drawers for bureaus, vanity cases and other case goods the matter of construction is given serious consideration.

The cheapest drawer construction is to join the fronts

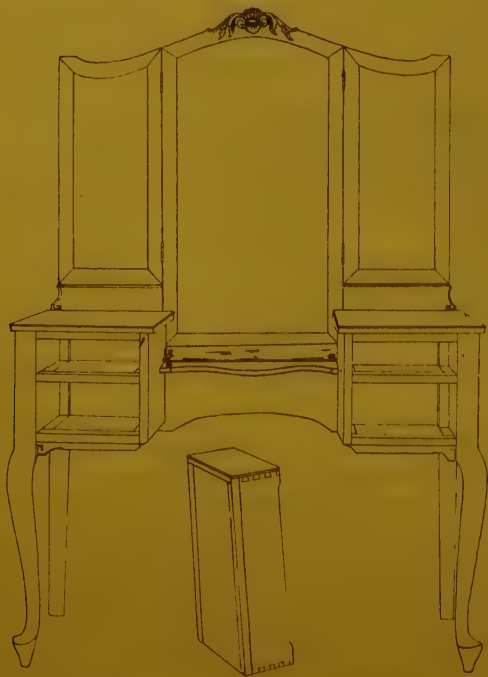


Fig. 12. Illustrating vanity case in completed stage.

to the sides by means of plain butt joints as in Fig. 13A: This construction necessitates the using of nails or brads.

The next best construction is Fig. 13B which must also be nailed. The lock joint, Fig. 13C, does not need to be nailed.

## Dovetailed Joint

The best construction for drawers is the dovetailed joint. This should be used in both front and back of the drawer. The bottom of the drawer should be grooved into the sides and the front of the drawer as shown in Fig. 13D. Fig. 13E shows the method of joining frames of mirrors and doors with two dowels. Fig. 13F shows method of joining doors with tongue and grooves. Fig. 13G illustrates

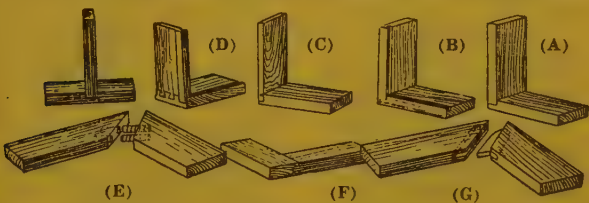


Figure 13.

- (A) Plain butt joints.
- (B) Nailed joint.
- (C) Lock joint.
- (D) Grooved joint.
- (E) Two-dowel joint.
- (F) Tongue and groove joint.
- (G) Feather or loose tenon joint.

the feather joint or loose tenon joint used on mirror and door frames where no end grain should be visible. To strengthen the connection of the bottom of the drawer with the sides there should be rubbed-in blocks, triangular in shape. Observe in Fig. 14 that dovetails are shown on the drawer front and also on the drawer sides. This should not be. Looking at Fig. 15, it will be seen how the sides of the drawer are joined to the front, but the dovetail does not show on the front. Fig. 16 shows the groove in the front of the drawer which was carried too far, making a hole in the side (marked X). Fig. 17 shows corner of drawer completed.

## Center Slide

Fig. 18 shows the correct way to joint the sides to the front of the drawer. The best drawer at the present time is fitted with center slides. A center slide is glued to the bottom of the drawer from front to back. This slide fits

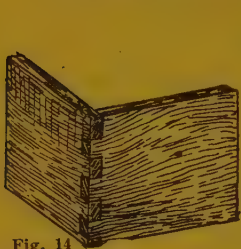


Fig. 14

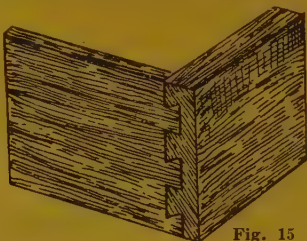


Fig. 15

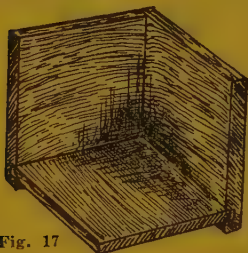


Fig. 17

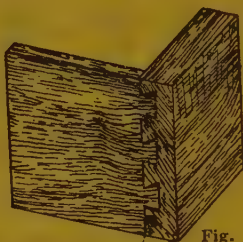


Fig. 16

Fig. 14. Showing dovetails on front and sides of drawer.

Fig. 15. Dovetail showing on sides only.

Fig. 16. Shows groove carried too far, making hole (x).

Fig. 17. Complete drawer corner.



Fig. 18. Bottom view of drawer showing correct way to joint a side. The center slide is glued to the bottom of the drawer from front to back.

onto the center part of the frame underneath the drawer opening. By the use of the center slides in drawers there is less likelihood of sticking of the drawer and less likelihood of the drawer getting out of line.

## Rod Making

Fig. 19 is a rod of the vanity case, illustrated in Fig. 12. Some manufacturing plants use rods almost entirely as the working drawings. Fig. 19A shows the height of the vanity case, the length of the legs, depth and location of the drawers and the height of the mirrors. Fig. 19B gives the width of the case, width of the drawers and width of the mirror frames. Fig. 19C shows the depth of the case, depth of drawers, frame rails, shelves and top.

It is necessary for a workman to refer from one view to the other in order to get the information needed.

## CHAPTER VIII

### ABRASIVES

## Early Use of Abrasives

Abrasives have been in use approximately 200 years. The exact date is not on record. The first abrasives were made from the discarded scraps of the glass works. Hence, the first abrasives were known as "glass paper." This term is still used in some parts of the country.

## Flint Paper

The next paper invented was known as "flint paper." This is a natural product and was used extensively before the use of garnet as an abrasive. The first experimental sheets of garnet paper were made in 1878. In 1880 garnet paper had been introduced to a wide market.

There are many grades of abrasive paper and cloth used in the furniture factories. The kinds of paper and cloth are as follows: Garnet, flint, emery, chalk flint, aluminum oxide, and silicon carbide. The last two products are made in an electric furnace. These two are given various trade names by different firms, but the description given below is typical of the process of manufacture of such abrasives.

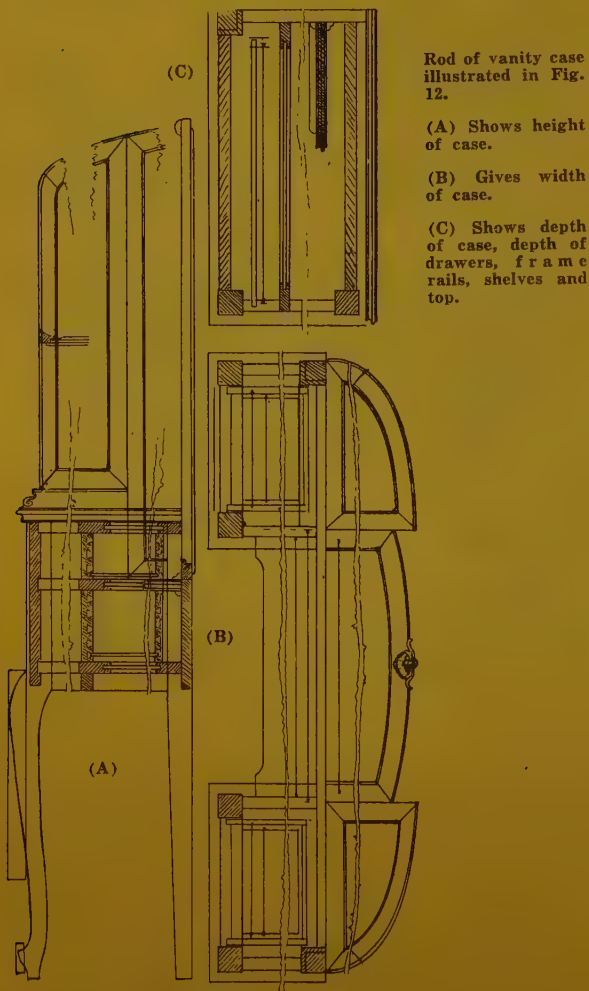


Fig 19.

## **Garnet**

Garnet is a natural abrasive wholly made up of mineral of the same name. Garnet occurs mixed in small percentage with other rock, which is quarried, crushed and concentrated by large scale mining methods. Garnet is the most extensively used abrasive for wood finishing.

## **Flint or Quartz**

Flint or quartz is a natural abrasive of a grayish or yellowish white, extensively quarried in many parts of the United States. It furnishes a cheap abrasive substitute for the old-fashioned "sandpaper". It is used in negligible quantities for technical work. Its main use is for general purpose work on wood or painting materials, where a low first cost paper is needed.

## **Emery**

Emery is a natural abrasive of which the best quality is commercially known as "Turkish Emery". The use of emery is generally limited to the metal working trades. It is not well adapted to technical industrial application but is widely used for general purpose work where low first cost is the deciding factor.

## **Chalk Flint**

Chalk flint is a natural abrasive similar in appearance to quartz flint but very much tougher. It is a by-product of the chalk mines of England. It is particularly adapted to the sanding of very hard woods, such as hickory and rock maple, as a substitute for a more expensive artificial abrasive.

## **Aluminum Oxide**

Aluminum oxide abrasive is a product of the electric furnace. The crushed aluminum abrasive is about the same shape as crushed garnet but is harder and tougher and highly resistant to fracture. This combination of hardness and toughness has determined its use on hard, tough materials, such as hard woods and combinations of metals with softer materials. Aluminum oxide is replacing garnet to some extent on severe sanding operations in the wood-working industry.

## Silicon Carbide

Silicon carbide is another product of the electric furnace. Crushed silicon carbide is a very sharp but rather brittle abrasive material. In hardness it approaches the diamond. Its brittleness has limited its use to soft materials such as leather, composition and soft alloys, which do not break down this keen but fragile abrasive grit.

## Water-Proof Abrasives

Water-proof abrasives are used for sanding with water or other liquids, when fineness of finish and speed of production are determining factors. Water-proof abrasives are made, in most cases, with aluminum oxide abrasive with a waterproof oil binder on a water-proof backing.

## Paper Products

Most of the technical abrasive paper products are on a Manila rope fiber backing—the strongest, toughest paper commercially available. A few of the less technical products are on kraft or wood fiber backing—when they are manufactured for less severe requirements.

## Abrasive Cloth

Abrasive cloth products are made on four different weights and constructions of cloth, as follows:

Jeans(J)—A light, closely woven fabric used for hand sheets and fine numbers of roll goods, when flexibility is required. 90-100 count.

Drills(X)—A heavier, stronger cloth used on nearly all roll products for machine use. 60-80 count.

Twills(XX)—A fabric heavier than drills for more severe work.

Duck(XXX)—A coarse, heavy weight fabric, for use when maximum strength is required.

All of these cloths are prepared for coating in the cloth finishing works of the abrasive factory. The cloth finishing processes must be planned to meet the requirements of the finished coated product.

## “Combination”

Combination is a term indicating a backing made up of heavy rope or kraft paper to which is glued a light



weight cloth sheeting for additional strength and stiffness. Combination is used when strength and "body" are required and when the flexibility of the cloth backings is not essential. Its cost is between cloth and paper.

### Methods of Use on Belt

1. Cut the two ends to be joined at an angle of 45 degrees with the edge of the paper. Cut the belt strips sand side down on a long table with a guide strip for keeping the strip accurately lined up. An iron bar, one-half inch thick, located by fixed studs accurately guides the knife for cutting. Several belts may be laid out, cut and glued up at one time if a large number of belts are being made up.

Turn over the belt so it will be sand side up. Drape the center over a peg or bracket above the table. Bring the ends together and fasten to the table on a smooth board with four tacks or push pins.

2. Sandpaper the cloth backing lightly for about three-quarters inch back from the angular ends, so that the reinforcing strip will hold better.

3. Bring the belt ends together, sand side down, and tack to a board to keep the belt straight and the ends in position. Cover the butt ends with glue by lifting each end up separately and running the glue brush across it. This assures the proper sealing of the cloth ends and prevents tearing, splitting and breaking.

4. Coat the reinforcing strip with glue, and—

5. Immediately apply the reinforcing strip to the joint, letting a little glue go down between the joint ends.

6. Quickly put the belt in a press or clamp for from 10 to 60 minutes, according to the time required to have the glue thoroughly set. If several belts are pressed at the same time, place thin strips of paper between the joints before putting the belts in the clamps.

The reinforcing strip should be a high grade, closely woven, unbleached muslin of good weight. Do not use gummed paper or gummed cambric as they do not carry enough glue.

The best grade hide or fish glue should be used, one part glue by weight to two parts of water. Keep the glue at from 140 to 170 degrees Fahrenheit.

Do not use a sized or filled cloth for reinforcing strip.

Cut the strip on a 45 degree angle or bias,  $2\frac{1}{2}$  inches wide so that the lengthwise threads run in the same direction as the belt, letting the strip extend a half inch over the belt edge on either side.

Do not make belts too far ahead and always handle carefully to avoid cracking.

#### BOOKS FOR REFERENCE

*Lumber and Its Uses.* R. S. Kellogg.

Publications of Forest Products Laboratory, Madison, Wis.

*Practical Kiln Drying.* E. U. Kettle.

A series of articles published by "The Furniture Manufacturer and Artisan", beginning with the June, 1921, issue.

*Kiln Drying.* H. D. Tiemann. This book contains a very detailed discussion of the subject.

PART VIII

*Furniture Finishes and  
Finishing*

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# *Furniture Finishes and Finishing*

## CHAPTER I

### HISTORIC

Color has ever and always fascinated the human mind. Its use in all lands and by all peoples antedates recorded history. Wherever the archeologist has unearthed evidences of human activity, there has also been found color in abundance. To paint and to color objects of ornament and usefulness was in all likelihood man's first feeble effort in artistic expression, as is witnessed by the mural paintings in caves and grottos in all parts of the world where prehistoric races have made their homes. Just what impelled this expression is not and cannot be known, except that the same instinct which draws the child's attention to a gaily colored toy likewise drew primitive man into a speculative desire to reproduce upon the things he used the colors of nature. The success of his efforts swelled his pride. Soon he embellished his things with marks of identification, thus establishing the usefulness of coloring. Later the same idea is expressed in crests, monograms, coats of arms, etc., with the result that coloring, painting, staining and polychroming were in full bloom with the birth of recorded history in Egypt, Mesopotamia, Crete and China. The manner in which this coloring was done and what pigments were used, have, in many instances, been lost to us. The significant fact is that coloring was one of the earliest, if not the earliest, expression of mankind as it falteringly took its first steps along the pathway of civilization.

### **Antiquity of Chinese Lacquer**

As far back as we can trace the story of Chinese art it has been full of color, with a notable leaning to its own peculiar lacquer. This lacquer must not be confused with our modern product bearing the same name. Chinese lacquer was based upon "lac," known to us as "shellac," and has no bearing even upon methods in the modern use of lacquer, either in practice or style, and serves no interest herewith except as a matter of historic note.

## **Polychrome, a Finish of the Ages**

Egypt, on the other hand, has shared with the modern world many of her ancient secrets in the use of color, the most interesting of which is the polychrome method of aging and softening color harmonies. The arts and industries of Egypt, as they affect the making and ornamentation of furniture, have been so fully described elsewhere in this Manual that a repetition of its contribution herewith seems unnecessary (See "Origin and Identification of Design," and "Narrative of Furniture"). Egyptian coloring found its way to the North and West, and we find it appearing in Mesopotamia, Greece, Rome and throughout Europe during the Renaissance. We find that these early Eastern artists used many materials and methods employed today, such as bronzes and bronzing, gold leaf and metallic pigments, although we have no proof that their reduction into liquids or application upon the objects for which they were intended, had anything in common with modern methods.

The polychrome of today which is applied to furniture must not be confused with that of the ancients. The interiors of their temples were large and massive, with somber appurtenances. Climate and relative humidity, constant sunlight, intense heat during the day and cold at night must all be taken into consideration as entering into any comparison of coloring then and now. What most interests us is that these ancient artists found the polychrome best suited to all conditions, as is proven by the fact that much of it retains to this day its life and natural freshness. Whatever their methods and systems were, they were for the most part lost with the decay of the empires in which these magnificent arts flourished.

## **Finishing Oak in Early Times**

What Europe may have lost in the polychromatic arts she made up in bringing out, through finish, the natural beauty of the wood itself. Here the sturdy oak makes its first appearance with its magnificent grain figures and natural beauty of texture. To preserve its surface and retain its beauty were the problems to which the early European finisher applied himself with zeal and hopefulness. The result of his labors is found in the magnificent old castles and in some of the furniture which graced the

homes of centuries past. These finishes were universally brown. With oils and waxes, the finisher of Europe did for his oak what the polychromatic artist did with his paints for the tropical woods of the valley of the Nile. He preserved them and left them to his posterity for enjoyment and admiration. The oak was felled and cut to board size and then covered with manure. This exposed the board to the amoniacle fumes and turned it brown, the shades being governed entirely by the length of fuming process and number of oil applications. This treatment brought out a uniformity of oak finish which prevailed throughout Europe for many centuries, in fact, almost up to the French revolution.

### English and French Finishes

With the early Seventeenth century, new thought appears in the finishing of furniture. Delicate French polish makes its appearance during the periods of Louis XIII and Louis XIV. This finish was based upon gums, such as lac, benzoine and what in modern vernacular would be called "elbow grease," necessitating, after its application to the wood, an infinite amount of rubbing and polishing. Many delicate treatments were performed with this polish, especially in the bringing out of inlays and marquetry. Some of the most exquisite furniture ever made bears this finish in its highest form and it is used to this day on some types of furniture and on musical instruments.

Later we find, across the channel in England, finishes and colors based on chemical ingredients brewed under the master guidance of such furniture producers as Hepplewhite and Sheraton. This may be called a "chroming" process, the chromium salts being impregnated into the wood which later was exposed to the light. This bleaching process gave the wood the soft and comfortable shades so essential to furniture beauty. Frequently there was added a combination of French polishing, spirit varnishes, oils and waxes.

Varnish, as we know it, did not appear until 1848, in Boston. While this has been questioned, it is the writers' opinion that the brushing on of liquids containing gum, which is the equivalent of varnishing, refers to the spirit varnishes made of wine spirits into which were dissolved shellac, gums and possibly damar or copal. The fact remains that American finishers first dissolved resins in hot oils, and as varnish is conceded to mean an oil vehicle

preservative, the process practically revolutionized the whole science of wood finishing.

Early English finishers relied on vegetable life for their colors, such as fustic, log wood, red madder and other constituents. These were extracted and used as dyes, in some instances dependent upon certain chemicals to augment and possibly produce shades. These chemicals not only changed the natural shades, but in many instances acted as mordants, making for the permanency of color which was traditional of this period. These were all aqueous solutions and hold good today as among the best known methods of applying color.

### **Boiled Oil**

It must be remembered that when varnish was introduced much of the woodwork then used, such as pine, walnut and oak, was immersed in boiled oil. Finished in the natural wood, the oiling process did much toward turning it brown. The oil in the early varnishes did the same, but the process was slower. The mahogany used was Sheraton, Hepplewhite and American red, but typical of American styles.

### **Modern Progress**

After 1850 there was an intense development of furniture finishing which was halted only by the Civil war. After the struggle, the story of wood finishing is replete with progress and achievement in colors, designs, adoption of modes of finishes, and in perfection of results. Painted furniture has had several recent seasons of popularity, alternated by periods of refined enameling. These modes and methods have led up to our present wood lacquering and lacquering enamels, which are now in their ascendancy and which have almost entirely replaced varnishing as a finishing process.

This closes, in effect, the historic past as it relates to the coloring and finishing of wood. It will give the reader a basic background for the study of modern methods of coloring and finishing as they will be disclosed in the following chapters.



## CHAPTER II

## THE IMPORTANCE OF FURNITURE FINISHING

In reading of the finishing of furniture, one, who is not concerned with the past but who has a rather intimate knowledge of how present day results are obtained, will find interesting facts which may in a measure solve some of the questions that come to all of us when we admire the beautiful results obtained today on wood.

**Present Shortage  
of Wood**

We must, of course, keep in mind that the demand of the present age is much greater than it has ever been before, and we must further keep in mind the fact that the raw material, that is the wood, is not as plentiful nor as selective as it was centuries ago. This we overcome largely with veneer, making thousands of feet out of a pretty log where heretofore there were but hundreds. The finishing of veneers in itself has required a more careful application of finishing materials so as not to disturb the permanency of that which it is intended to depict. In other words, a piece of furniture built up out of veneers should have the semblance of solid wood and when one considers that only  $\frac{1}{28}$  of an inch of the genuine wood (the word "genuine" only used to differentiate from solid) is used, it becomes obvious at once that a more careful treatment is necessary in the application of the various finishing materials. In the days when it was possible and we did use solid woods, the amount of sanding and the method of sanding mattered little, so long as the surface was obtained, nor did the application of stains matter, for there was no glue joint to worry about. All this must be done knowing that the cleavage is in no way affected.

Little does the owner of modern furniture worry about the methods which are necessary to produce that most pleasing in all furniture of today. The industry has taken care of all of these matters, and the fact remains that today a well put up piece of veneered furniture is stronger than one built of solid wood.

We here merely touch upon veneers and built up stock, in that it concerns the finishing room, as to the treatment in producing the finishes that are in vogue and the finishes that have become standard in their respective woods. We might touch upon compositions such as furniture built of two or three kinds of woods. This oftentimes is done to

control price as well as design. In these cases the finisher shows his art—makes a uniformity of color and sometimes even the grain, so that when the piece is finished it is difficult for wood experts to discover the facts. In doing this, the average American home is enabled to have at least the general styles and a semblance of that which he sees displayed in the show rooms. It does an immense amount toward creating desire for the still better things.

It is impossible in a short treatise to enter into all the details of the many steps that are necessarily employed to attain the end, but it is possible to set forth in concise form, sufficient information so that the reader who cares to know, can satisfy himself on all the vital points.

## CHAPTER III

### PRIMARY PROCESSES OF FINISHING

#### **Sponging, Sanding and Dusting**

After a piece of furniture leaves the cabinet room and is received in the finishing room, it is usually inspected immediately by the foreman finisher who passes it on to the various benches for sponging. Sponging is a necessary operation and is usually employed in all the better makes of furniture. Sponging, as its name implies, is the operation of moistening the surface sufficiently to raise the grain, the idea being two-fold. The raising of the grain gets rid of the small depressed fibers and also the core matter of the pore. It has been found that, unless wood has been sponged, much grain will be raised when the water stain is applied; therefore, the sponging operation.

After the wood has again dried, it is thoroughly sanded but this time with extremely fine sandpaper so as to get a level surface. Very coarse grained wood, such as oak, will oftentimes require dusting with a coarse brush so as to loosen the core matter or the granular matter which is found in the pores. Then it is dusted, this time undoubtedly, with an air gun from the spraying room. This removes all of the dust from the pores as well as from the general surface. The sponging operation is a rather delicate one today when veneers are but  $\frac{1}{28}$  of an inch in thickness and in no case must be overdone. It is found that the high-grade wood, such as mahogany and walnut, especially burls and crotches will not endure

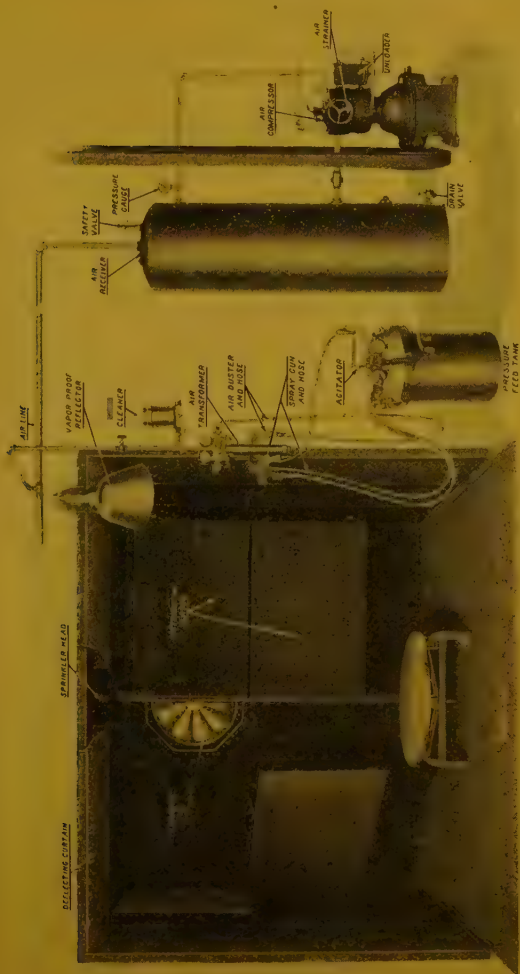


Fig. 1. Detail of complete equipment used for finishing furniture.

much sponging and consequently the water is warm so as not to penetrate too deeply. Warm water will evaporate more quickly than cold water and thus the danger of moistening through and through the glue joint is eliminated. Furniture of the mediocre kind and the cheaper kind is rarely given a sponging soak. The staining is done immediately after it has been sanded.

### **Importance of Correct Sanding**

The sanding operation is undoubtedly one of the most important, outside of staining, for as the surface is prepared so will the following finishing coats appear. Indentation and recutting will be permitted if the process results in quality. The work is used advisedly for it has done so much for the balance of the operation. A poorly sanded piece will invariably turn out a poorly finished piece. Building up with varnish and other finishing materials is a difficult task and therefore the foreman has what we call an inspection tour before he allows anything to be applied. Coarse grade sandpaper will ruin elegant finishes, and sandpaper applied across the grain will do the same. All this sort of thing must be absolutely cleaned up before he permits the form to be destroyed.

### **Filling**

The sponging operation not only raises the fibers and helps to clean out the pores but it has a tendency to extenuate the pores, the idea being to make them larger and the figure more pronounced after the darker filler has been impregnated into the pores. A flat, low, shallow pore is a difficult thing to fill but a clean, deep, pore more readily takes on the filler and in consequence it is more apt to hold its place. One can readily detect a poorly filled piece of furniture. If the filler is not fairly crowded into the pore, settling takes place and this settling becomes more pronounced as the successive finishing coats are applied, and if a new piece of furniture shows defects caused by poor filling, one is practically assured that as the piece ages these pores will become more pronounced. The defections will be a continual source of annoyance because dust settles therein and various other troubles can then be attributed to the poor filling.

## Semi-Filling

The semi-filled finish is one in which there is no actual attempt made to level the surface by the application of the filler. This filler is usually applied for color effects only, such as in a sprayed oak where the pores are white. These finishes are usually stained and given a fair coat of shellac or a thin coat of wood lacquer, sometimes both, and then sanded just to make a leveling of the surface. A filler, rather thin, of whatever shade or color may be desired, is then applied and wiped off immediately, leaving enough of this sort of filler in the pores to produce a color effect. A white effect is produced by using carbonate of zinc, commonly known as zinc white, and possibly mixed a bit with white lead, with turpentine and perhaps a bit of Japan. This is then allowed to dry thoroughly when one more protective coat is applied, usually with the spray. It is obvious that the protective coat must be very light colored and transparent.



Fig. 2. Showing how finish is applied with a spray gun.

## CHAPTER IV

## STAINS

**Applying  
Stain**

Staining the wood undoubtedly is the one keynote operation. It is not only the process of coloring the wood but it is the process of coloring it correctly. There cannot be any waste of stain. It must be put on evenly. Especially is this true where crotches are made, where there are various kinds of wood all in one piece. The general effect must be uniform. Stains formerly were applied with a brush, sometimes with rags, sometimes with sponges. Many of them today, however, are applied with a spray. On delicate veneers the stains are heated and applied hot, first to get penetration and second to get penetration without lifting the veneer, for it is a well known fact that a hot liquid will not affect the wood nearly as much as a cold liquid.

**Delicacy of  
Operation**

A good operator will be able to tell the outcome of a staining process when he sees it in the wet, and on hard grained woods he will oftentimes lay it off, as we call it; that is, keep brushing over the hard parts until the penetration will show up uniform to the eye. Here is a case where the operator must visualize the results before it is completed. On a soft part of the wood, where penetration is expected, he will apply water to such an extent as to unify the absorptive power to that of the other parts of the wood. It is easily seen that it is only training that makes a man proficient in this sort of work. If he puts on too much water he will not get enough penetration and then the soft wood will be too light, making it necessary to be touched up, after the balance has dried. This is always difficult. It is well to have men who understand the art of staining and who can tell how it will turn out while the work is wet.

**Types of  
Stains**

Stains are subdivided into these classes: Water stains, sometimes called acid stains; spirit stains, those which are dissolved in an alcohol; and oil stains. The water stains

where the first two were to be used. They were made from various barks, herbs, weeds, and colorful plants, whose color matter was extracted by boiling or steeping. The difficulty was that it could rarely be made uniform. Depending upon the uncertainty, it was an uncertainty when



Fig. 3. Applying color with a hand operated spray gun.

finished. With the event of aniline powder, of the standard strength, it has been possible to make formulae of uniform shades.

### Acid Stains

There are stains called acid stains because we use the acid reacting aniline powder sometimes adding a bit of acetic acid for penetration and to act as a mordant. We add acid reacting salts such as bichromate of potash. We have done this because, as the writers believe, we inherited the idea from the early English mahogany made by Hep-



plewhite, Sheraton and others. They learned that a solution of bichromate of potash on mahogany would give a soft tone of brown. They varied these tones by the various strengths of the application of the same, the chemical of course being the water solution of chemicals are rarely soluble in oils or spirits. They learned further, that when bichromates were exposed to the air the color darkened, which color reaction is much sought in stains. At the same time they chromed the colors and all chromes act as mordants.

### Water Stains

There is much to be said for water stains. The main thing is that today we have them absolutely permanent and uniform so that the foreman finisher can always know that his stains, when applied, are permanent. We have been told that water stains turn back. 'Tis true. All woods age, and in the aging process the finish grows a bit darker. This is not the stain. It is simply the process of the aging of wood that makes this phenomenon.

### Spirit Stains

Of spirit stains little can be said. Aniline dyes that are soluble in spirits are not fast to light. They came from the basic dyes. Their durability depends entirely upon the amount of finishing material put over them, the amount of this finishing material retarding the sunlight or daylight rays. There are shorter and longer periods of durability but they all fade.

### Oil Stains

Although much has been said about oil stains, at best, they are not recommended for high-grade furniture. Just a word as to their usual composition. Browns are safe, generally speaking, because they are made from gilsonite or asphaltum gums. These are permanent in themselves, so the various shades of browns are safe and do not fade. Other colors, however, especially the red, fade. Why do they fade? Because the same dyes are used in a spirit stain. These dyes have been made soluble in oils by a mixture of oleic, stearic acid, or sometimes, resin. These intermediates (if we may call them such) act the same as lye in making soap. Fat and water do not intermingle



but by boiling fat in strong lye, soap results. This can be a neutral soap and then it is harmless to the skin, but let the alkali be in excess, and it burns the skin. In the same manner the oil soluble dye is controlled. The oelic acid or the stearic acid makes it possible to dissolve these dyes in such oils as turpentine or hydrocarbons such as benzol, naptha, gasoline, and the like. If the aniline used is not permanent (same as is soluble in spirits), it cannot be permanent when it is made soluble by means of a foreign substance such as stearic acid or oleic acid. Both of these acids, after the aniline dye has been applied to the wood, leave the dye stuff and attack the finishing material. While there are many exceptions to this rule and while there are many improvements on oil stains, they have yet to pass the test of time. In the last few years many new oil stains have been marketed, but it is strange, but nevertheless true, that they are not used in the manufacture of good furniture. Water stains do affect the wood and raise the grain somewhat, but the fuzz so caused, is easily "knocked off" with very fine sandpaper, and again the work has to be dusted, before proceeding to file.

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## CHAPTER V

### THE MAKING OF FORMULAE

Our formulae are all dependent upon our present weights and measures, and if the foreman finisher learns how to build, formulae become simple. For instance, a gallon of water contains four quarts, each quart contains two pints, consequently a gallon contains eight pints, each pint is made up of 16 ounces, each ounce is made up of eight drams, and each dram of 60 minims or 60 drops.

#### Measuring Formulae

Formulae are built to fit into these measurements as follows: A standard solution of any color material is usually four ounces to the gallon. Figured out it means: Four ounces to the gallon, one ounce to the quart, (because there are four quarts to the gallon). One ounce to the quart, (and there are two pints to the quart), then a half ounce to the pint. Each pint contains 16 ounces and if a half ounce to the pint is used four drams have been used. Four drams being the equivalent of a half ounce. Having used four drams to 16 liquid ounces constituting

the pint, a quarter of a dram to each liquid ounce has been used because, having 16 liquid ounces and a half ounce of powder or four drams, there will be  $\frac{4}{16}$  of a dram or a quarter of a dram to every liquid ounce. Drams are divided into scruples. If there are three scruples to a dram, and each scruple weighs 20 grains, then there are 60 grains to the dram. Now, in order to complete the picture of weights, comparing liquids to dry, it is necessary to go backward. These are 60 minims to the dram, liquid measure; there are 60 grains to the dram, dry weight. Thus they correspond. There are eight drams to the ounce. This applies both to the liquid ounce and the dry ounce. If there are eight drams to the ounce, or 480 grains and there are 16 ounces to the pint or pound, then there are 7,680 grains in the 16 ounces or the pound, and 480 drops of water to the liquid ounce, or 16 times that amount to the pint. Hence, a pint is a pound.

### Importance of Correct Weight

Maintaining this parity of weights and measures, a pound against a pint makes a very easy method for computing formulae, but caution must be given here in selecting a scale for weighing these fractional ounces for making stain formulae. Various ounces contain 480 grains,  $437\frac{1}{2}$  grains, depending upon avoirdupois, apothecary, or troy weight, so that it is absolutely necessary that, when weights are bought for any scale, they are built as follows: Grain weight, one, two, three, five, and ten; then three scruple weights of 20 grains each, two quarter dram weights of 15 grains each, and two half dram weights of 30 grains each, then a one dram weight of 60 grains, a two dram weight of 120 grains, and a half ounce weight of 240 grains and one or two ounce weights of 480 grains. Following the American gallon, the apothecary weight is followed as given, otherwise fractions appear that are absolutely uncontrollable when building formulae. Good foreman finishers have often fallen down due to the fact that the present day purchasing agent sometimes insists upon buying a scale. When such a scale is purchased usually on price, correct weights are not always received. The foreman finisher might suppose that he is getting a better scale than he had formerly used and, taking the same number of weights, finds that he is offscale the difference between 480 and  $437\frac{1}{2}$ . Imagine a man who has been making stains in five-gallon lots. Big orders come in and

he wants to make 30 gallons. He multiplies the difference by six and of course his stains all fall off. Therefore, we are particularly interested in having our readers know the difference in weights and measures employed in this country.

### **Metric System**

Speaking of weights and measures, let us refer to the present campaign for the introduction of the metric system. Ninety-eight per cent of the countries are using the metric system, and the only two countries that do not use it are the British Empire and the United States. The English measure is absolutely impossible in our method of figuring. American measures are a hodge-podge of others that have gone before. The Imperial gallon is much larger than the American gallon, but the American gallon is subdivided with more sanity than the English gallon, but why use uneven figures? Why use weights and measures that have no bases, and nothing but tradition to recommend them? The apothecary no longer uses the weights and measures that are called apothecary. When he makes his materials he uses the metric system.

Our European neighbors have long ago recognized the need of a uniform measure and are delivering goods in metric system, metric measures, metric weights. Many of our own manufacturers have adopted it.

### **Wash Coat Oil Shellac**

It was mentioned that water stains require sanding. If the wood is very delicate, and there is a bit of fuzz raised by the application of water stain, what is known as a wash-coat of shellac is given, the strength of which is based upon a fact that most factories use a four and a half pound cut of shellac and of this four and a half pound cut we use one pint to seven pints of alcohol and give a wash coat of shellac either with spray or brush. This, when dry, is sanded and brought to surface when it is ready for filling. If it is an open pore finish, no filler is to follow. If it is a semi-filled finish this will be explained under semi-filled process. The majority of the wood finishes are of the filled kind. They are filled, as stated before, with a darker filler than the balance of the piece.

Filler is applied easily of a strength varying somewhat,

but let us say, a gallon of filler weighing 10 to 12 pounds to a gallon of naptha. This is brushed over the wood, first lengthwise and then thoroughly, crosswise. Continued brushing over the pores across the grain forces the filler material into the pores and crowds them down. Therefore, it is readily seen why it is necessary to dust out the pores and rid them of their granular matter. A good filler will dry sufficiently for cleaning off in 20 to 30 minutes and when it begins to turn gray, it is wiped off with rags across the pores, a process which continues the crowding of the filler into the pores.

### **Open Pore Finishes**

Open pore finishes, as their name implies, are finishes which do not fill the pores. The present day method of open pore finish is to put on a finishing material that follows the pores; one that follows the recesses of the wood. The olden day open pore finish was somewhat of a mistake, for we put on a coat of shellac after the stain coat and in many ways shellac reacted as a detriment, because it has the peculiarity of filling and bridging small recesses. This is why it is so universally used. It is an excellent leveller, but work half done is not done at all, and so today the modern wood lacquer has been substituted for shellac. Wood lacquer absolutely contrary to the actions of shellac, follows the level of the wood. In other words, it will cover the elevation parts of the wood and at the same time go to the depths of the pores and cover them, making an impervious finish even though the pores have not been filled. This wood lacquer makes a much better finishing surface than any other material that has ever been used. In the olden times, fillers were practically unknown. In the intermediate period, cornstarch, lime, meaning calcium carbonate, and other powders were used, but they were not permanent. In the period of oak, no filler was used, instead hot linseed oil. The best exemplification that we know is the fumed oak finish. This is an open pore finish, very beautiful but not decorative.

The present day filler consists of water floated silix, (ground silica) color pigment, and asbestine, thoroughly ground to a paste with boiled linseed oil and some Japan dryer. The quality of a filler depends upon the purity of these components. Cheapening is done by using soft silix, substitute oils—usually detected by odor—and the "glass test" known to all practical finishers.

## CHAPTER VI

### COMMON FINISHES

Kinds of finish, as known to the trade, are wax, shellac, varnish, (dull, matt, polish, rubbed, and satin) wood lacquer, varnish enamel, lacquer enamel, crazed enamel, and polychrome. We must not overlook the many decorated styles that are combinations of lacquer—lacquer enamels, decorations and combinations of the old recognized, may we say staple finishes—modernized to fit in the present exotic age and influence.

It naturally follows that the wood or kinds of wood in a piece of furniture finished in enamel plays a little part, in comparison to those that show the wood surface. The paint covers all, sometimes a multitude of sins.

These finishing materials are best applied with spray. The color schemes are known to everyone and vary in style and decoration. They are finished off just like a varnish or wood lacquer finish, rubbed dull or polished according to the style, decorated with hand painted designs, transfers, stripes, or shadings. Here, as in many other finishes, the maker supplies recommendations as to how best to use the material so that the foreman can safely proceed, when following directions put down after much experiment in the producing laboratory.

#### Wax Finish

Probably one of the oldest and at the same time a most durable finish—in modern methods—is made by applying one or two coats of shellac to the stained work, sanding to surface, and following with a coat of paste wax rubbed to a polish.

The quality of the work at hand immediately spells the quality of the finish. Thus we find that this may be reduced to one coat of shellac, sanded very lightly, or even this sanding operation may be reduced to the following scheme: After paste wax is applied it is rubbed about with sandpaper which at once levels the shellac coat and spreads the wax through. Finally it is rubbed to a polish, or again, the sanding may be done in regular manner and the wax coat be liquid mineral wax which may be sprayed or brushed. When it sets, a few quick strokes brings it to a polish and one has a "waxed finish." A simple comparison of coats will spell the wearing qualities.

A wax coat over wood lacquer is said to serve two

purposes—that of softening the gloss, and making of a still more durable finish. This is recommended for open pore work.

### Shellac Finish

As its name implies, it is usually produced by three coats of shellac with one or two sandings, and then when thoroughly dry is matted with pumice stone and oil. This process consists of sprinkling very fine pumice stone over the surface, then pouring sufficient rubbing oil (light paraffin oil) in several places, wetting the rubbing pad with this oil and first with light straight strokes with the grain, cutting off the glaze or sheen, so that a dull rubbed, egg gloss finish results. Oil rubbed shellac is a very good finish but susceptible to damage by hot dishes or water marks.

### Varnish Finish

As the name indicates, it is a finish that is made by the application of varnish. Here we find shellac plays its most important role. After the filler coat has been cleaned off, the work is given a coat of "surfacers"—usually of shellac, its strength again in keeping with the quality of work but not a wash coat. A three pound cut is recommended. This serves as an evener as it bridges any minute depressions and assists greatly in producing a level surface, when as many surfacers may do much to seal the pores, etc., they do not as a rule bridge. This coat should be sanded with extremely fine sandpaper and dusted, and when this operation is completed, the varnish coats may follow.

### "Sealer and Surfacer"

But when we say shellac is a good—yes, the best sealer and surfacer—we must explain the term "sealer and surfacer". Sealer means to seal in the stain and filler and to produce a coating that is level. The sealing in process, at the same time, prevents the oil of the varnish from being absorbed by the wood or filler, depriving the varnish of its oil and disturbing the previous efforts. Varnishes known as long oil are used (sometimes) directly upon the filler, the greater unit of oil allows for the percentage taken into the wood, the second and third coats doing the building.

### **"Satin Finish"**

Varnish coats may be polished, which is done with rotten stone and water. Some use a universal oil polish or it may be an oil rub finish. Today this is the most popular—thus we say water or oil rubbed finish. Varnish, as practically all finishes, is now applied with the spray. Again we say dull rubbed, meaning a pumice stone oil rub, this may be termed "satin finish." Little high polish finish is produced today. Only in musical instruments is this prevalent.

### **Wood Lacquer**

This is a new finishing material for which much is claimed and undoubtedly correctly. Unfortunately for the material of this nature, many makers jumped into the manufacture of wood lacquer thinking that it was a process of mixing, and from the wise experiences of consumers, we may say that wood lacquer met with considerable resistance from furniture makers. They became wary and rightfully so; but as water seeks its level so does wood lacquer. The meritorious articles are coming to the front, and today some of our best varnish makers are making good wood lacquers. Strange as it may seem, varnish men who ridiculed wood lacquers when they were first made, carry pages of advertising for their new brands of wood lacquer.

Its application is the same as varnish. The solvents, however, attacked both shellac and filler, and for a time caused considerable worry. The filler man had his problem, overcoming it by adding asbestos to his filler, and his lacquer made, changed his formulae. So as to avoid this difficulty today, the better product no longer requires more than a thoroughly dry filler.

Lacquers come in two classes, the regular, that can only be applied with the spray, and the special, which is known as brushing lacquer.

The preparation of the wood is the same. The rubbing, polishing and matting or dulling, is done just like on a varnish. It differs in that each successive coat becomes a part of the previous one. Its solvents may be said to be alcohols and the aldehyde, ketone, etc., its body of pyroxylin and gums, and that they do not check or craze, being, when dry, a permanent coat.



## Lacquer

### Varnish Enamels

Both are pigmented liquids, either varnish or wood lacquer, to which have been added pigments to give a glossy, opaque, colored surface.

## Crackle

### Finish

A crackled finish is the result of applying rapid drying materials over slower drying materials.

Illustrations:

1. Shellac over varnish tends to check the finish.
2. An oil undercoat containing a number of dryers over varnish will produce a crackled effect.
3. A normal lacquer, either clear or pigmented, over which is sprayed a more rapid drying lacquer, results in a crackled finish.

## Polychrome

The first step (although not entirely necessary on account of the hardness of Veronite) is to shellac the entire article. This shellac coat dries in a very short time. Next apply the base coat which may be gold, a colored bronze, enamel or oil colors.

If gold—mix the gold bronze powder with shellac and apply to the piece—the coloring of any piece is entirely up to the individual depending upon the color scheme and effect desired.

A number of colors may be employed in the base coat on an article depending upon the designs.

After these colors are dry, to produce the “aged” or “dusty” effect—paint the entire article with either the light or dark smutting solution (depending on the tone of shading desired). Let this dry for a few minutes and then with a soft cloth “high light” the work; that is, wipe off the smutting solution, allowing the base color on the high parts to show through, permitting what will to cling to the depression and carvings so when dry, it will give the dusty appearance.

The latter so-called aging or smutting may be omitted, retaining the brilliancy of the colors only.

Lamp bases and plain candles may be “stippled”. This is very effective on plain surfaces.

After shellacing an article, apply the “stipple paste” rather thick, depending on how fine or coarse a stipple



one desires. With a brush the paste may be formed in various waves and ripples. Allow this to thoroughly dry which may take several hours. When dry, finish with colors as above.

The beauty of polychrome or bronze finishes lies in the fact that it permits the carrying out of individual ideas and taste.

These directions are general and may be applied to any material, wood or composition.

Plain surfaces are not adapted to polychroming, therefore, any piece abounding in turnings, carvings, or flutings is ideal. The fluted columns of the ancients with their many elaborate carvings were often painted in various colors which the centuries of storms and sunshine have dimmed until they are visible to us today only through what appears to be a dusty film.

## Etching

The process of etching designs is difficult. The old way is to make a stencil, put it over the finished surface and fill the openings of the stencil with unslaken lime; but if one wishes to do this on wood the etching can be done with sulphuric acid by first coating the entire wood with melted paraffin wax, removing the wax in design form and where it has been removed treat with acid. Neutralize the remaining acid with an alkali and water.

By using pyrogalllic acid solution one to two ounces to the gallon of water, allowing it to dry, then applying various strengths of bichromate of potash, or better still a solution of chromic acid, allowing both of them to be exposed to the sun's rays, aging effects will be obtained. Then finish the entire piece by applying boiled linseed oil, as hot as the hands will stand it, allowing this to be exposed to daylight.

The modern etched finish is a sandblast proposition. The designs are cut out of rubber—same as used for auto tubes—fastened to the work, and then, by means of sandblast, the design is cut into the wood. It is usually used for border effects.

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## PART IX

# Furniture Upholstering

By John W. Stephenson

*Editor—The Upholsterer and Interior Decorator.*

*Author—Cutting and Draping, 1904; Drapery Cutting and Making, 1926;  
Furniture Upholstering, 1914, and Modern Furniture Upholstering, 1923.*

*Diagram Illustrations by courtesy of Clifford & Lawton, Inc.,  
New York. Publishers of the above books.*



# Furniture Upholstering

## CHAPTER I

### HISTORIC

It would be difficult indeed to say when the necessity or the desire for ameliorating the too insistent angularities or chill temperatures of household furnishings first put into the thought of man an impulse to create some primitive form of protection.

As far back as we can go, even before homes were built, there are well defined indications that the skins of animals served the purpose of "upholstering" the raised dirt floor, which served both as bed and seat for the cave dweller.

#### Earliest Types

The earliest types of fixed upholstery are found in connection with Egyptian stools and chairs—examples of which are in existence, whose histories may be traced back as far as the 3,400 B. C. Of this character is the crude stool or small couch (Fig. 1), attributed to the period above mentioned and having carved legs in imitation of cloven animal feet. The frame of this stool is 36 inches long and 10 inches high. The character of the frame and the round rails would indicate that it constituted a support for an attached fabric or leather covering.

#### Egyptian Examples

Fig. 2, of about 2,000 B. C., is another type of Egyptian stool, standing 5 inches high and 14 inches square, the seat having been composed of strands of twisted reeds, woven through perforations and some of the strands still remain attached.

Fig. 3, of about the same period is a folding stool, each paneled section being about 30 inches long and 16 inches wide, pinioned together and having a leather seat which is still fairly well preserved.

Fig. 4, also a stool, shows curved top rails which were probably used as a means of fastening the skin of an animal in order to form a seat. It probably belongs to the Fifteenth or Sixteenth century B. C.

The first definite chair form discoverable is that of Fig. 5, which dates from about 15 B. C. The seat rails are

perforated for thongs or some other form of lacing while the back is paneled of the same wood as the balance of the construction.

Other Egyptian stools, (Figs. 6 and 7), show the construction of the seat without the use of perforations, Fig. 6 showing the frame composed of four rails and four mortised legs, while Fig. 7 shows a similar stool with a woven rush seat. Both of these are attributed to the Seventh or Eighth Egyptian Dynasties and belong to that period from 1788 B. C. to 1580 B. C.

### **Greeks and Romans First to Upholster the Couch**

Coming down through the centuries, in addition to their utilization of leather and thongs, we find that the Greeks and Romans were probably the first to really upholster their couches and seat furniture by the employment of cushions or pillows.

Fig. 8, after a drawing of an ancient Greek couch in the Industrial Art Museum at Dresden, belongs to the period where cushions took on elaborate proportions.

Fig. 9, a reproduction of the pictorial elements of a kylix or dish, shows various forms of seat furniture, some of which incorporate the use of cushions.

### **Mentioned by Homer**

Homer speaks of "coverlets of dyed wool, tapestries or carpets, and colored and showy furniture," which were probably genuine descriptions of objects known and seen though not the property of the writer.

Fig. 10, a Roman throne chair found in Herculaneum probably required a fairly high seat cushion in order to bring the occupant up to a point where the arm rests would be of comfortable use and the Pompeiian chair (Fig. 11) is an authentic reproduction and shows a cushion held to the seat by strapping.

The more substantial formal types of furniture employed by the Greeks and Romans in ceremonial pageantry were of sculptured stone or marble and it is not conceivable that either the priest's chair (Fig. 12) by the door of the Temple of Themis, at Athens, or the judge's chair (Fig. 13), found on the site of Prytaneum at Athens, were employed without the comforting influences of cushions or fabrics.



Earliest Types of Upholstering

## **Influence of Renaissance**

We must, however, come to the period of the Renaissance to discover definite indications that the art of upholstery had attained a place comparable to that of the carver and the cabinetmaker in creating luxurious appointments for the wealthy classes of their day.

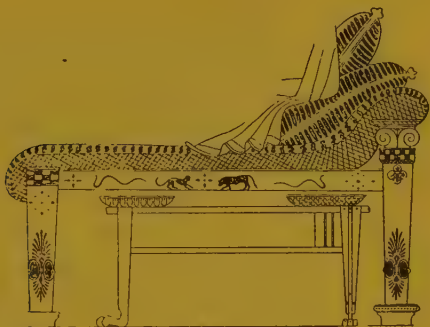
Fig. 14, is a Dutch chair of 1642, upholstered in leather. Prior to the Seventeenth century, represented by this last mentioned chair, there is not much evidence of upholstery. Furniture of English, German, French and American types was apparently constructed more for stability than for comfort yet their forms would indicate that though not upholstered in any permanent way their rugged outlines and their stiff shapes were undoubtedly made comfortable by cushionings of the sort shown in Fig. 15, a section of the Boscoreale frieze taken from the walls of a house in Herculaneum and showing a metal chair with a loose cushion.

## **Madame de Pompadour Set Overstuffed Style in France**

While we may be able to trace some developments of furniture upholstery up to and including the Sixteenth century, it is from this period on that we find upholstery attaining sumptuary proportions. It is said that in France Madame la Marquise de Pompadour first set the fashion for overstuffed upholstery by having her richly-carved, show-wood pieces completely upholstered over. If this is true, la Pompadour, one of the favorites of Louis XV, in indulging this particular whim established a fashion which has never entirely gone out.

We are, however, rather more inclined to believe that the rise of sumptuary upholstery in the Seventeenth century was more closely identified with the fact that at this period there were being imported into France and England from Italy and also being copied locally, some of the most wonderful fabrics that the world has ever seen—velvets worth a king's ransom, tapestries and embroideries of superlative beauty—and the possession of these was recognized as an evidence of wealth and culture so that their use as coverings for furniture, which became quite common, is not surprising.

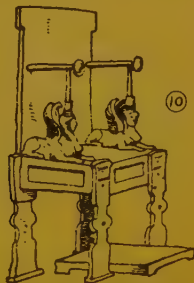




(8)



(9)



(10)



(11)



(13)



(12)

Upholstering of the Greeks and Romans.

## The Upholstered Seat

In the late Seventeenth and early Eighteenth centuries, wood seat and latticed seat furniture gave way to the upholstered seat. For the most part, this upholstering consisted of a padded seat with webbing and canvas support, the whole covered with a leather or fabric. Just when springs came into use it is difficult to determine but it is safe to assume that by the end of the Eighteenth century some form of spring support had been developed.

## The "Exercise" Chair

One of the most interesting of Chippendale chairs was an "exercise chair," having two layers of springs on which the occupant could bounce up and down to obtain exercise. (See Fig. 16.)

Upholstering or the art of over-laying rough furniture surfaces with a uniform padding has thus been traced through its successive stages to that period when America, saturated with the influences of furniture imported from abroad, began to pioneer along the lines of an interpretation of its own by means of which it would be independent of foreign importations.

## Colonial Upholstering

There is no very great distinction between the earlier types of Colonial upholstered furniture and those which were contemporary with them in England, but while the same purposes of usefulness were to be rendered by American-made pieces, there was a gradual but definite demarcation from the standards and types common to Great Britain and the continent. The purpose of upholstering has not changed throughout the centuries. Now as then, it is a means to beautify and to make comfortable utilitarian objects of furniture, which though no more useful were, nevertheless made more usable because more comfortable.

## The Use of Springs

It should not be supposed that the art of upholstering, which in the Renaissance reached its highest accomplishment in the Seventeenth and Eighteenth centuries, has remained without development or importance since that time.



(15)



(16)



(14)

Showing Progress of Upholstering

As a matter of fact, there have been many changes other than the adding of springs, which have left their impress on the furniture of their own day as well as upon those by which they were succeeded. Rigid frames of wood took secondary place 30 years ago to frames composed in part of iron rods or spring steel wires. These had a "give" to the necessities of the occupant that could not be duplicated by rigid wooden frames. Today, however, we have returned to the more rigid type and obtain comfortable proportions and yielding depth of padding by the use of multiple springs and softer cushioning—particularly down.

## CHAPTER II

### TECHNIQUE

To obtain an understanding of the part that upholstering plays in the furniture field today one must become familiar with the processes by which its effects are produced.

#### Economies of Time and Material

In the manufacture of fine furniture, and by fine we mean good rather than delicate, there are few modern mechanical shortcuts which can be availed of. From time to time the effort to speed up production has resulted in the invention of some so-called economies of time and material. None of these, that does not incorporate the employment of full height springs and the building up in a progressive manner of the successive layers of filling material manipulated by hand, has been able to produce a value comparable to that produced by use of the old-fashioned methods. And when it is remembered that the major part of the labor expense which enters into the upholstering of a piece of furniture is hidden from view in the finished piece, there is all the more reason for an understanding of the processes that, though concealed, are representative of values which justify the price.

#### Construction of Frame

Beginning with the frame it is important that this should be constructed of clear, tough lumber, free from knots, shakes or checks; not too hard so that it would resist the

tacks it is to receive and yet hard enough to give the necessary rigidity and strength.

The frame is in no sense inferior because it does not live up to the "solid" requirements of other types of furniture. That is to say, a mahogany chair with upholstered seat and back is not necessarily, or indeed desirably, "solid" mahogany.

The tacking parts are much better if composed of tougher wood and this implies in many instances the use of veneered or faced seat rails.

### **Character of Joints**

Although not a part of upholstering consideration, the character of the joints which hold the frame together are as important to the life of the piece as is the character of the workmanship that the upholsterer supplies. Tight-fitting, properly glued and doweled joints with the necessary supporting and reinforcing blocks, are not visible in the completed job but they have much to do with its life of service.

### **Foundation of Springs or Padding**

Practically the first step definitely belonging to the upholstering of a piece is that of applying the foundation on which the springs or padding are to rest. Strips of webbing, a heavy woven linen or jute fabric, (also sometimes cotton) are stretched across the bottom of the frame and securely fastened at either end by tacking. It is not the object of the upholsterer to stretch these webs as tightly as he can. To do so would completely destroy the "life" of the material. There is a certain elasticity in the stretch which must not be exhausted but which remains as a part of the "give" of the upholstering. In time this elasticity becomes exhausted and because of this there has been invented various substitutes which do not embody the same frailties of webbing.

However, though these substitutes may last longer and have greater strength, they do not possess the same resiliency as webbing and are consequently, less successful in providing the comfort that is an imperative requirement of quality furniture.

## **Placing of Springs**

Coiled springs are the next step. These are sewn or otherwise securely fastened to the webbing in order that the base of the spring may have no opportunity of assuming an altered position with relation to the top which is to be tied in such a manner that while it may be freely depressed, it can not shift from side to side.

The springs are tied by twines which are fastened to the tops of side rails and cross each spring, being knotted as it crosses each side of the coil; they are tied and knotted from front to back and also from side to side. Thus there are four knots at each top coil when the springs are tied both ways. When tied also diagonally, making the top of the spring still more secure, there are eight knots.

It is important that the point at which the twines are attached to the rails shall be much lower than the tops of the springs when tied at their permanent height, in order that the depressing of the springs will not be a strain on the twines, which would be the case if they were tied level with the tops, and depressing of the springs in such a condition would place the entire strain upon the twines and they would break.

## **Covering Springs with Burlap**

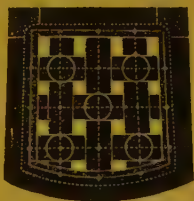
The next step in the construction of a seat is to cover the tops of the springs with ten or twelve ounce burlaps, stretched over the tops of strings and the springs and tacked to the rails all around.

On the better classes of furniture it is also customary to sew the tops of the springs to the burlaps, thus making a still more secure foundation for the subsequent stuffing.

## **Resiliency Methods**

There are two methods of disposing springs to form a resilient foundation for the seat of a piece of furniture. In one method the springs, though grouped close together upon the webbing, are kept three or four inches from the edges of the frame (See Figs. 17 and 18). This is the type of seat, the tying of the springs for which, has just been described.

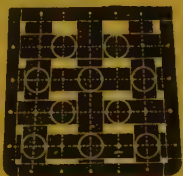
The other method calls for an additional row of springs



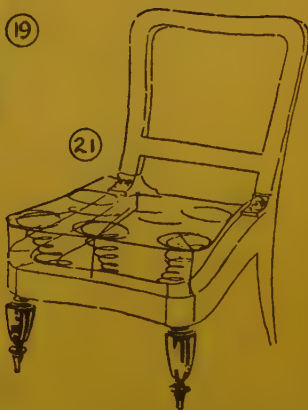
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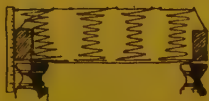
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19

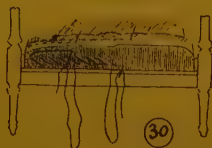
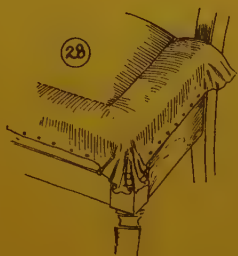
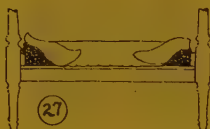
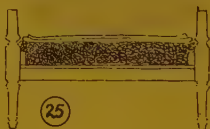
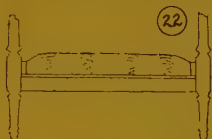


21



20

Details of Springing Up



Details of Hard Edge Upholstering





32



33



34



35



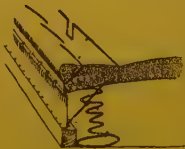
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38



39



40



41

Details of Double Stuffing for Spring Edges

at the front rail, these springs being so tied that the upper coil of each spring extends to a line even with the face of the frame. These springs are tied a definite height above the rail to receive a wire or bamboo rod, which being fastened to the front or top coil of each spring, creates an edge that "gives" in use with the balance of the springs of the seat. (See Figs. 19, 20 and 21.)

### **The Stitched Edge**

The next step is the forming of a stitched edge, so called because both shape and solidity are given to a "roll" or edge stuffed up in burlaps and stitched through and through to create a uniform, stiff edge.

Where the springs are in the center of the seat only and do not come to the face of the rail, the seat is technically termed a "hard-edged" seat, the building up of which is progressively illustrated in Figs. 22, 23, 24, 25, 26, 27, 28, 29, 30 and 31. This stitched edge serves two purposes: First, it fills in the slope between the top of the springs and the edge of the seat; second, it builds up a square edge which gives the seat form and stability.

### **Double Stuffing**

Where the seat upholstery follows the spring edge construction, the slope from the top of the springs to the edge of the frame occurs only at the back of the seat or on the sides where there is no spring edge construction, as for instance in Fig. 32. Having spring edge on both sides and front, there would only be the abrupt slope at the back edge, the balance of the seat being flat. For this reason, instead of building the stuffed edge, it is customary to double stuff such seats, that is a layer of stuffing material is laid over the canvas which covers the springs, this canvas also being sewn to the wire or bamboo edge as shown in the illustration. Over this layer of stuffing is placed light burlaps which is stitched through to the burlaps covering the springs, and the space between the stitching and the edge is then stuffed up all around, sewn to the wire edging, the springs and then stitched through and through after the style of a hard edge, the various processes being illustrated in Figs. 33, 34, 35, 36, 37 also Figs. showing 38, 39, 40 and 41 detail of stitch.



(42)



(43)



(44)



(45)



(46)



(47)



(48)



(49)



(50)



(51)



(52)

Details of Double Stuffed Seats

## Undercovering

Following the formation of the edges we have already described, another layer of stuffing material is applied and covered with an undercovering of unbleached muslin, the progressive steps being shown in Figs. 42, 43, 44, 45 and 46, illustrating the hard edge and like Figs. 47, 48, 49, 50, 51 and 52 illustrating the spring edge.

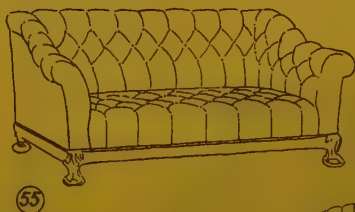
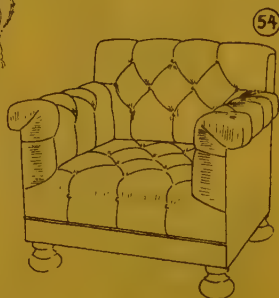
Plain upholstered surfaces, such as the seats we have been describing, must have a certain amount of firmness in order to hold their shape. If the upholstering above the springs is too deep or too soft, it soon has a tendency to become "sloppy" and shapeless. Therefore, in much of the modern furniture, the plan has been adopted of having a spring foundation with a shallow upholstered top and using upon this foundation a cushion form, sometimes filled with springs with a padded top and bottom or filled completely with some soft material like hair or down. (See Fig. 53.)

## Buttoned Surfaces

By the use of buttoned surfaces also, it is possible to stabilize soft forms of upholstering, the tying down of the buttons to the foundation canvas holding the stuffing material more or less firmly in place. (See Figs. 54, 55 and 56.)

Curved surfaces are also frequently buttoned like, for instance, Figs. 57 and 58 because of the fact that the buttoning helps to confine the upholstering to a uniform depth, while at the same time, the pleating of the covering creates an elasticity that would not be possible with a tightly pulled plain fabric. Thus for instance, the upholstering of Fig. 57 is much more yielding than the upholstering in Figs. 59, 60, 61 and 62, because in order to avoid wrinkles in the plain curved backs of the last four figures mentioned, it is necessary to make the stuffing fairly firm and to pull the cover quite tight.

It is not feasible to put springs in the back of a chair like Fig. 63 when it is upholstered without buttoning or pleats because the rigidity of the back cover would not permit the springs to come into play. On the other hand, if the back of a chair like Fig. 63 was buttoned instead of upholstered plain, there would be a "give" to the buttoning and if over a spring foundation greater comfort would be provided.



Examples of Tufted Spring Seats



57



58



59



60



61



62



63

Details of Circular Backed Chairs



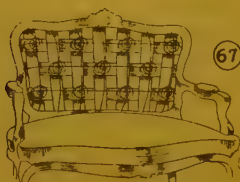
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65



66



67



68



69

Details of Tufted Spring Backs

## **Buttoning as Ornament**

The buttoning of upholstery was not alone intended to assist in creating greater comfort in connection with curved and softly-filled surfaces but it was also to serve as a means of ornamentation, the placing of the buttons creating pipes and diamond or biscuit-shaped spaces which were stuffed up so that pleats were formed from button to button.

This, while distinctly applicable to the softer fabric covering, was also used as a means of creating deep upholstery where leather was used as a covering. The progressive steps of a tufted spring back are shown in Figs. 64 to 71 with an explanatory cross section, (Fig. 72.) Also Figs. 73 to 79 show similar principles applied to a large over-stuffed piece.

## **Use of Iron Rods**

A half century ago, at which period the types began with which we are more intimately familiar, iron rods were introduced for the purpose of composing a resilient frame, a form of construction which though having the strength of wood, had not the weight which always accompanied sturdy wooden frames.

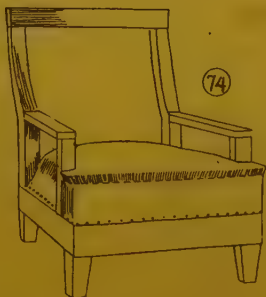
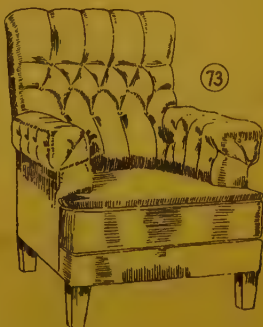
The base was always of wood but the superstructure attached to it was composed of half-inch iron rods forged to shape upon which the subsequent upholstery principles were built up. This produced a chair, the illustrated details of which are shown in Figs. 80 to 86.

## **Use of Flexible Spring Steel Wire**

It was then considered that still greater comfort could be provided if in some way the iron frame could be given a degree of flexibility, and this led to the introduction of a superstructure composed of flexible spring steel wires attached one by one to the wood base bent into form and finally bound round and round with soft heavy twine to secure them all together. These spring steel wires were of the diameter of the wire used in the construction of the coiled seat springs, No. 8 or No. 9, according to the choice of the maker.

A chair thus constructed began its contribution to comfort in the frame itself, because while the wood base was





Details of Tufted Spring Backs

rigid and solid, every part of the superstructure would give under pressure and spring back again into place as soon as the pressure was removed. Figs. 87 to 90, explain the process of construction.

### **"Turkish Wire Back"**

Subsequent upholstering processes in connection with a chair of this type called for very deeply tufted upholstering on a spring foundation similar to that shown in Fig. 90A, and the luxurious upholstering and the comfort-giving qualities of such pieces of furniture were indicated in the term "Turkish wire back furniture," under which they were marketed.

At the end of the Nineteenth century wire back furniture was at the height of its popularity and was the most luxurious type obtainable. Shortly thereafter the choice of furniture began to be influenced by considerations of room unity. The interior decorator as a factor in home furnishings was coming to the front and the creation of "period" interiors was establishing a new viewpoint with relation to furniture needs.

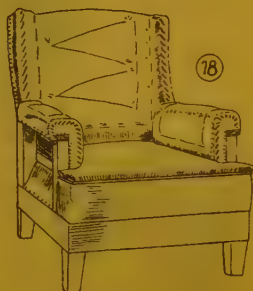
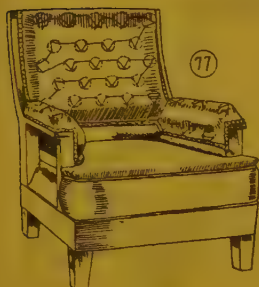
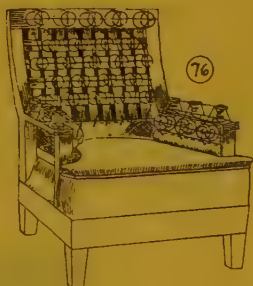
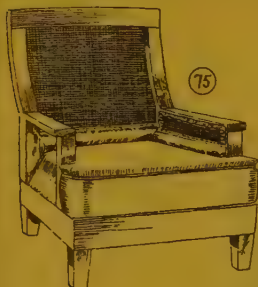
### **Influences of Twentieth Century Styles**

The first ten years of the Twentieth century saw the rise and fall of the Mission style, which reintroduced an era of heavy, cumbersome furniture pieces combined with soft loose cushions. It had its merits and its demerits, but the possible reason for its short life was probably the fact that its severities of line and form coupled with its cumbersome weight, did not coincide with the theories of decoration in the average home.

On the heels of the Mission vogue came a very definite inclination to favor English types of furniture and furnishings. The over-stuffed Chesterfield type, the deep-seated, heavy-upholstered club chair, together with the lighter types of show-wood pieces with backs and seats completely covered, came quickly into vogue and have remained with increasing popularity to the present time.

### **Modern Responsibilities of Upholsterer**

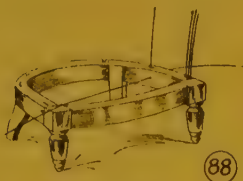
The reintroduction of these heavy, over-stuffed types called for the highest skill of the old time upholsterer.



Details of Tufted Spring Backs

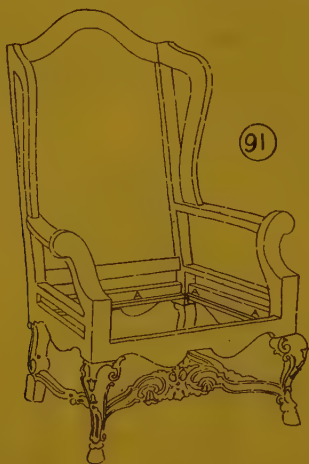


Details of Iron Back Pieces



Details of Iron Back Pieces

The frame, which is merely a ground work, gives only a slight suggestion of the ultimate forms and dimensions of the finished piece. Therefore, every element of comfort, of style and of proportion, depends upon the skill of

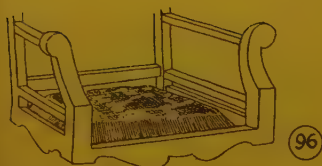
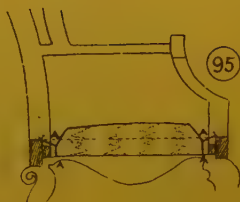
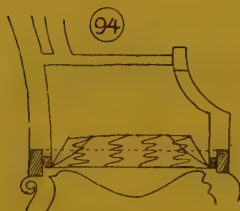
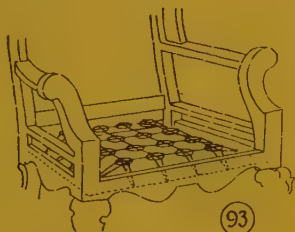
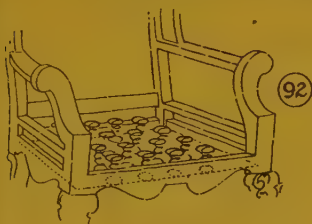


the mechanic whose work as upholsterer produces the completed article.

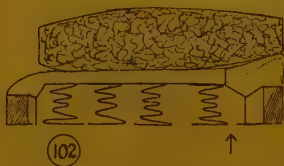
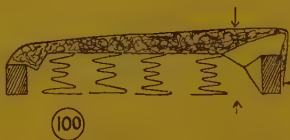
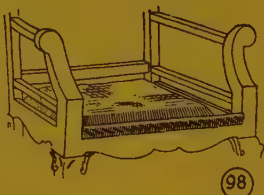
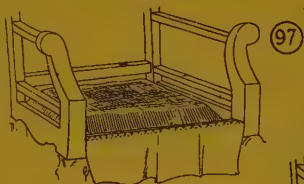
Few indeed, of those who handle furniture as a merchandise commodity, have any conception of the purpose of the various processes which occur between the naked state of the furniture frame and its ultimate, attractive form and luxurious depth of yielding surfaces presented in the finished form. So intricate indeed are these principles that they can only be described in a technical treatise which gives attention to all of the details of every successive step of the chair's metamorphosis.

### **Building in the Quality**

In order to give some understanding of the quality that is actually built into such pieces, we have illustrated progressively the various steps of the armchair (Fig. 91) which combines a spring seat with a loose down cushion. This chair illustrates very effectively the latest developmen

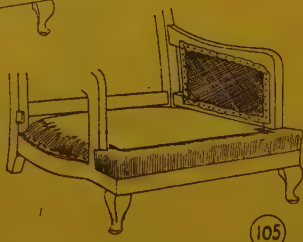
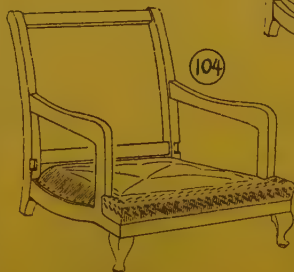
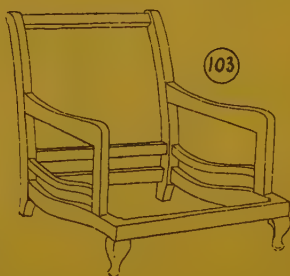
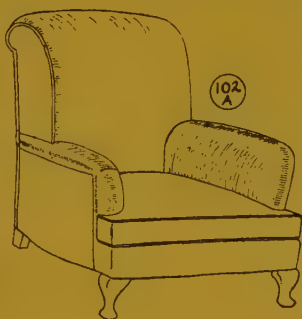


Details of Down Cushioning



Details of Down Cushioning





Details of Built-up Down Cushioned Backs

in establishing the highest degree of comfort of which upholstering may be capable.

There is no more yielding form of filling material than that which is provided in the shape of down; it also has the faculty of regaining as soon as pressure is removed. This is a faculty possessed by no other filling material in the same proportion, and indeed no other material has this same quality of recovering from pressure over a long period of time in constant use. Of this, however, more later.

Fig. 102A, in addition to having a down pillow seat cushion, has a down cushion incorporated into the upholstery of the back, the various steps of procedure being illustrated progressively in Figs. 103 to 109. This cushion is, of course, not removable and must remain as a fixed element of the upholstery.

The slipper chair (Fig. 110), with the explanatory Figs. 111 to 121, is provided with a down seat cushion and also a down back cushion, both of which are attached permanently to the chair.

The apotheosis of comfort is reached in the type of furniture illustrated in Fig. 122, and while the description of such a piece is necessarily highly technical, we have chosen this piece as an example to describe in upholsterer's language in order that the reader may study step by step the development of such a piece, thus becoming familiar with the technical terms of the description and at the same time obtaining an understanding of the fundamentals of upholstering practice which enter into its construction.

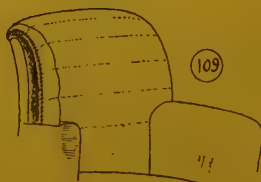
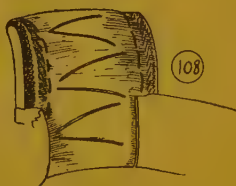
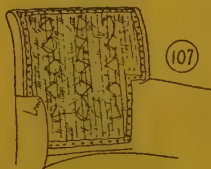
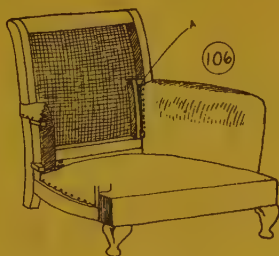
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## CHAPTER III

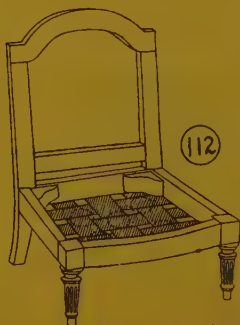
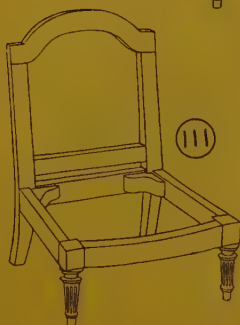
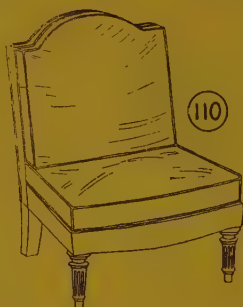
### A PROGRESSIVE ILLUSTRATION

The Chesterfield of Fig. 122 is a typical example of a large modern piece employing down top upholstery for seat cushion, arms and triple back, making with its deep spring seat, spring arms and spring back, a most luxurious piece of furniture. The frame illustrated in Fig. 123 shows the general construction of piece in question. The seat frame is webbed in the ordinary manner for 48 springs placed in four rows of 12 as shown in Fig. 124.

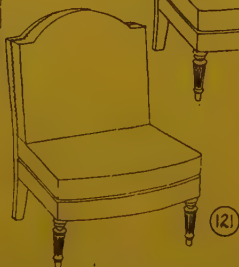
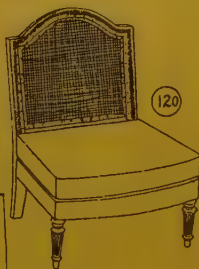
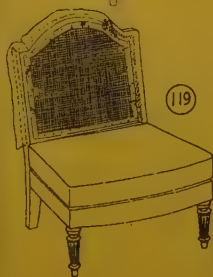
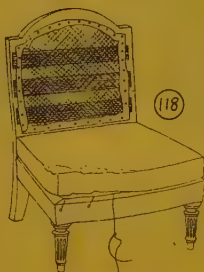
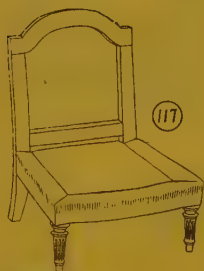
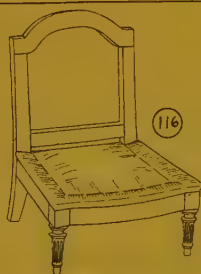
Prior to placing the row of edge springs, the top coil of each spring, which ordinarily appears as Fig. 125, is opened and shaped as a long coil as shown in Fig. 126 so that it will project over the front rail. The end of the



Details of Built-up Down Cushioned Backs



Details of Slipper Chair , "



Details of Slipper Chair

wire is also bent so as to lock in after the manner illustrated in this last figure. The elongated top coil is also bent so as to tip up after the manner shown in the cross section of Fig. 127.

The springs of the seat are "four-knot" tied, that is a twine passes over each spring from front to back and is knotted at each side of the coil and another twine from



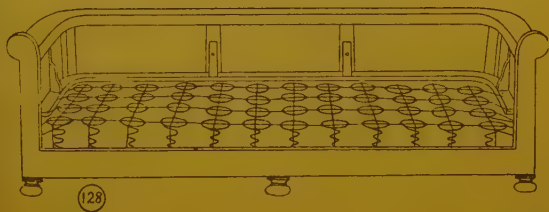
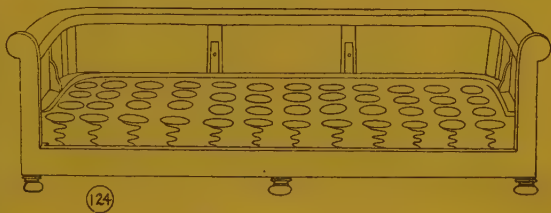
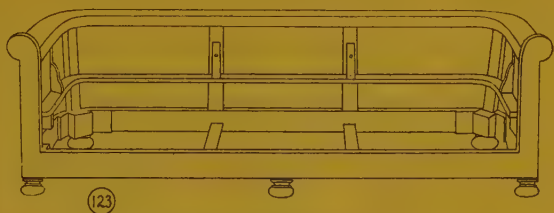
end to end passes over and is knotted to each spring as indicated in the illustration (Fig. 128). Thus, every spring has four knots on every top coil.

By examining the cross section of Fig. 129 it will be noticed that the twines which tie the front and back springs into position are carried down through the spring and knotted to some of the lower coils. This is done so as to allow the top coils of the spring to remain level, thereby creating a flat platform which forms the foundation of the upholstery. To assist in creating a spring edge to this platform, a spring steel wire is attached to the front and end edge springs as shown in Fig. 130.

The next step shows in Fig. 131, burlaps applied over the springs and stitched through and through back over the wire edge on the front and ends.

Our illustration does not show the springs sewn to the burlaps, but on expensive work, such as this, it is customary to sew the springs to the burlaps, knotting the twine at each stitch. Illustrations showing this process have appeared in connection with the pieces illustrated earlier in the series.

The seat of a sofa as large as the one we are treating is more substantially constructed if double stuffed, because the stitching through and through of the hair top helps to flatten the seat into a platform on which the cushions may rest.



Details of Chesterfield Upholstering

## Treatment of Hair

The hair is smoothly woven into a compact mass as shown in Fig. 132. This is covered with burlaps and then stitched through and through as shown in Fig. 133 and in the cross-section (Fig. 134). It will be noticed in this cross-section that the front edge projects about one inch beyond the wire. This edge is stitched to form a soft roll and the final coating of hair is then laid on and covered with muslin.

It will be noticed in cross-section (Fig. 135) that both the burlaps and muslin are sewn to the wire as there is no necessity for carrying these fabrics down to the frame for tacking as the wire at each end of the seat forms a solid place for attaching and this method avoids encumbering the space under the rail where the final coverings must be tacked.

## Platforms for Cushions

In constructing the platform for down cushions the surface of the platform must be concave, the front edge being raised about an inch to an inch-and-one-half above the level of the seat. This is intended to compensate the convex shape of the bottom of the cushion—thus preventing an unseemly gap between the edge of the cushion and the front edge of the platform, which would be the case if the upholstery platform was perfectly flat from front to back.

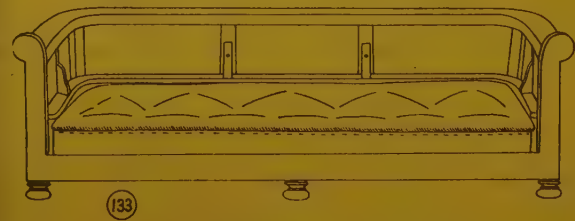
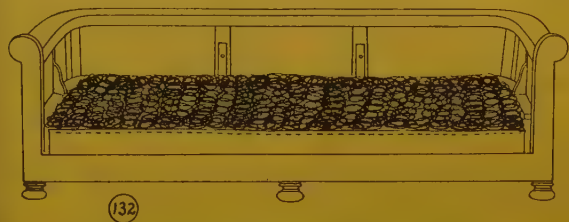
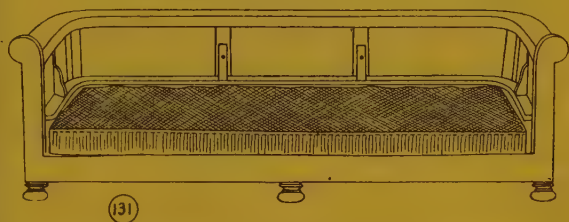
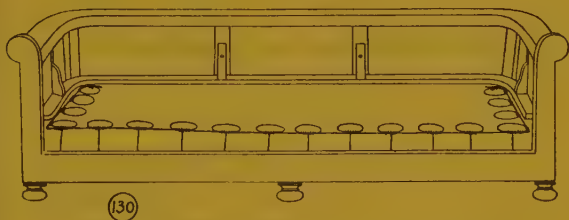
A line of stitching through muslin to spring burlaps, five inches back from the front edge of the roll, creates a very definite depression at this point and from that point back the balance of the seat is made as flat as it is possible to make it.

To save material, the platform is only covered with upholstery fabric for a space extending about five inches back from the nosing or for convenience back to the point where the seat has been stitched down to the spring burlaps. The balance is covered with sateen.

## Treatment of Arms

When finally completed in muslin the piece has the appearance of Fig. 136. Contrary to the procedure in the majority of cases the arms are next to be treated and in





Details of Chesterfield Upholstering

order to make them not too bulky and at the same time provide them with springs, the webbing foundation for the springs is attached to the outside arms. It will be necessary to provide supplementary tacking blocks, unless already provided in the construction of the frame, which will permit of a crevice separating the arm from the back, the two blocks to which we refer being indicated by XX, (Fig. 137).

A narrow, wedge-shaped roll is built up with hair enclosed in burlaps on the face of these blocks as shown in Fig. 138. This roll is shaped to approximately the dimensions of the nosing which is shown on the front of the arm in connection with Fig. 139.

Twelve springs are employed in the arm, placed as indicated in Fig. 140, the two bottom rows being full-sized pillow springs and the top row being either small-sized pillow springs or half springs. After having been tied down the springs are covered with burlaps as shown in Fig. 141 and the nosing is attached and stitched as indicated in Fig. 139.

### Stuffing the Arms

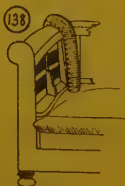
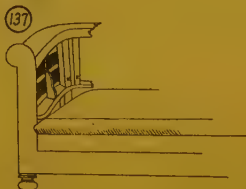
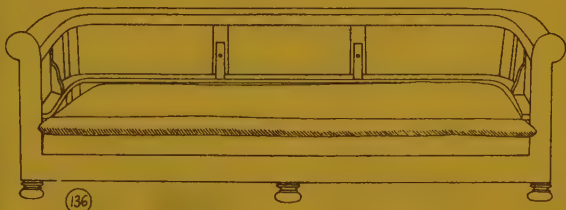
A coating of hair is next applied either by bridling or by stitching through to the spring burlaps and this is covered somewhat after the manner of a double stuffing, these two steps being indicated in Figs. 142 and 143.

It will be noticed by the cutaway portion of the nosing in Fig. 143 that the burlaps which confine the hair of the double stuffing are not attached to the nosing but go down to the frame behind the nosing in order to give the greatest possible flexibility to the springs.

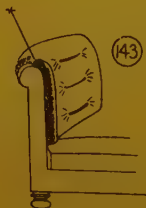
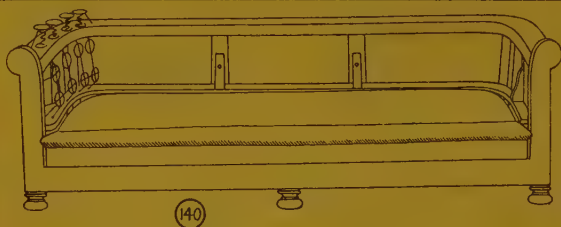
The down pad which covers the arm of the piece we are describing must be shaped to fit the double stuffing and give the proper form to the finished arm. The front border of the cushion therefore must be shaped to follow the nosing on the arm as it appears in Fig. 139.

A piece of cardboard is placed in front of the nosing and tacked as shown in Fig. 144 and the outline of the nosing is traced on the back of the cardboard indicated by the dotted line X to X. This shows the shape of the under side of the cushion. The thickness of the cushion must be allowed for, 2 or 2½ inches at the bottom sweeping around and diminishing at the top outside of the arm.

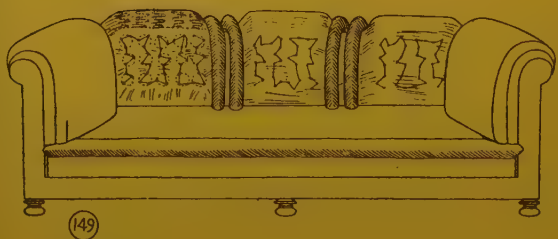
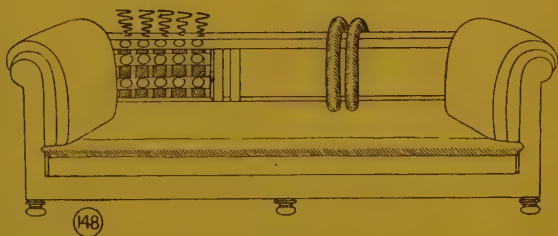
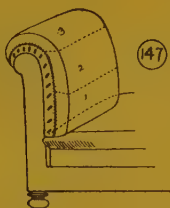
This constitutes the pattern for the front of the cushion



Details of Chesterfield Upholstering



Details of Chesterfield Upholstering



Details of Chesterfield Upholstering

as shown in Fig. 145. The pattern is now placed on the fabric and cut out with  $\frac{1}{2}$  inch allowance for seams as shown in Fig. 146. A similar piece is cut for the back of the cushion, the top, bottom and lower edge added with the partitions as shown in Fig. 147; the sections 1, 2 and 3 filled with down and the form sewn into place.

### **Details of Backs**

After both arms are finished in muslin the backs are next to receive attention. These are built up in three separate pieces divided by the wedge-shaped rolls already described. The outside back is webbed as shown in Fig. 148, small pillow springs placed in position, tied and covered with burlaps as shown in Fig. 149.

The same process is now followed in constructing the back cushions as has been already described in connection with the arms. The down-filled cushions must each be shaped by making the pattern for the side borders and each one sewn in place to the built-up rolls which divide the back into three sections.

Fig. 150 shows the process progressively; the left hand section shows the hair understuffing, the middle section shows the hair covered with burlap and the right-hand section shows the down-filled cushions in place.

Fig. 151 shows the three backs and arms with all down-filled cushions in place and Fig. 152 shows the seat cushions added.

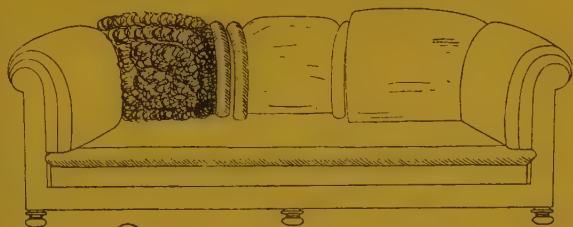
## **CHAPTER IV**

### **MISCELLANEOUS REQUIREMENTS**

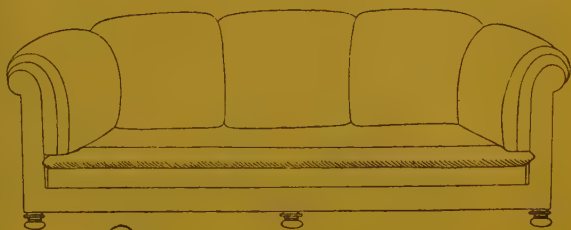
While we have suggested that workmanship is responsible for a large proportion of the quality "built" into the upholstering of a piece of furniture, the character of the materials employed has also a major part to play in producing both durability and comfort. The qualities of webbing, springs, burlaps, and filling materials are important, and for the finest of furniture nothing but the best should be used.

### **Durability Depends on Strength of Webbing**

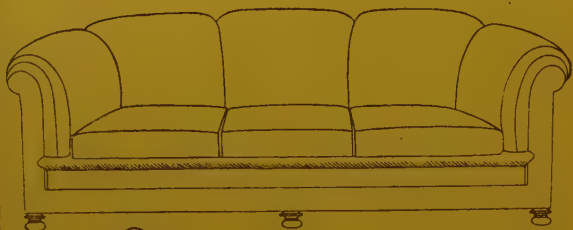
It will be readily comprehended that the durability of an upholstered seat is dependent primarily upon the



150



151



152

Details of Chesterfield Upholstering

strength of the webbing which supports it, and any weakness there will depreciate the values put into the subsequent processes.

### **Types of Springs**

In the matter of springs it is better to employ a No. 10 spring tied down to eight inches than a No. 8 spring at full height, the reason being that the greater number of coils gives greater flexibility with the power to come back to the full tied height.

### **Filling Material**

The best filling material is long, clean, curled hair. Next to this is moss, then African fiber, tow and excelsior. Hair obtains its superiority because of the fact that a curl given to each individual strand creates of it a small spring which retards matting together and gives life to the mass.

On the cheaper grades of furniture it is, of course, not possible to use hair for all of the filling, but in the better grades it is customary to use hair as a filling material throughout the entire job.

Stitched edges of hair will stand up over a longer period of hard use than any of the other materials named, and there is less depreciation due to the breaking of the fiber, if, after a period of years, the furniture is re-upholstered.

### **The Use of Down**

We have not included down in the materials listed above because down serves a special purpose which none of the materials already mentioned could provide. Down is used as a soft deep surfacing and is always confined in a down-proof, cotton casing either in the form of a cushion or as a top pad. The form for a down cushion should always be made up with interior walls which separate the down into a number of compartments. The advantage of these interior partitions is that they prevent the down from bunching which would be the case if the down was simply filled into one large open form.

### **Conclusion**

We have tried to point out the fact that the quality of upholstered furniture depends not alone on that which



is visible in the finished piece. As it stands on the floor of the merchant, a piece of furniture may be judged by the quality of the woodwork, the carving, the finish and the character of the covering material. This is all that is visible to the lay observer. Even an expert would find it difficult to determine how dependable the interior workmanship might be. That part which is not visible must be largely accepted on faith—not faith in the price, not faith in the visible, but faith in the merchant who himself must make sure that his sources of supply have provided him in every instance with reliable workmanship and a full “money’s worth” in the material not open to view.

### BOOKS FOR REFERENCE

- The Upholsterer and Interior Decorator.* Clifford and Lawton, Inc.  
*Furniture Upholstering.* John W. Stephenson.  
*Modern Furniture Upholstering.* John W. Stephenson.  
*Handbook of Upholstery and the Allied Trades.*  
*Cutting and Draping.* John W. Stephenson.  
*Drapery Cutting and Making.* John W. Stephenson.  
*Art Industry.* G. W. Yapp, Editor.  
*Cabinet-Maker and Upholsterer's Companion.* J. Stokes.  
*Hints and Practical Information for Cabinet-Makers, Upholsterers and Furniture Men.* John Phim.



PART X

*Furniture Transportation*

By Ernest Longfellow Ewing,  
*Traffic Counsel, Grand Rapids, Michigan*



# *Furniture Transportation*

## CHAPTER I

### FURNITURE TRANSPORTATION

The chief purpose of freight transportation of goods is to accomplish their distribution. Distribution involves carriage and delivery. Therefore transportation does not fulfill its purpose unless the goods carried are promptly and safely delivered at their destinations and to their rightful consignees.

Prompt and safe carriage and delivery very largely depend upon the manufacturer's shipping methods. As the shipper or consignor, the manufacturer has the responsibility of properly packing, marking, billing, and routing the shipment.

#### **Function of the Railroad**

The railroad, as the carrier, is the agent of the shipper, or of the consignee, whichever pays and bears the transportation charges. The interstate commerce act gives the railroads the right to initiate and establish and exact for the transportation of goods, rates and charges based upon classification of goods according to their transportation characteristics, and to establish and maintain rules, regulations and requirements in connection with the application of their classifications, rates, and charges.

#### **The Railroads' Classification and Rate Schedules**

Within that right, and with the object of promoting the prompt and safe carriage and delivery of goods, the railroads or carriers publish and file with the Interstate Commerce Commission, and with all State Commissions, printed tariffs or schedules wherein may be found all classifications, rates, rules, regulations and requirements applying to the transportation of goods. Open files of those tariffs or schedules are also maintained at all important railroad offices and stations to enable the shipping public to inform itself with respect to the classifications, charges, rules and requirements. Also, shippers may obtain copies of the tariffs or schedules applying to their particular traffic by addressing the proper representatives of the railroads via which they forward and receive freight shipments and

stating the nature of their shipments, inbound and outbound, in carloads and in less than carloads, and the points or territories to and from which their shipments principally move.

Therefore every shipper has the opportunity of knowing just what are the classifications, rates, rules and requirements that are important to him, and under the interstate commerce act the shipper is charged with the responsibility of having that knowledge.

Among other things contained in the railroad classification schedule or tariff, are rules and specifications for the packing and marking of shipments, and complete instructions governing the billing or making of the bills of lading.

### **Need of Classification**

Prompt and safe carriage and delivery of less-than-carload shipments of furniture are particularly dependent upon careful observance of the classification descriptions of articles of furniture, and upon strict compliance with the classification requirements for packing and marking. Also, failure to observe and comply with the classification's requirements automatically subjects furniture shipments to rates and charges for transportation substantially higher than would otherwise be exacted. A penalty charge is provided for application to shipments of furniture that are not packed in compliance with the classification's rules and requirements.

### **Summary of Shipping Information**

In the following pages the principles of freight classification and of freight rate construction will be briefly explained, and other things that are important in connection with furniture transportation, such as packing, marking, billing, routing, loss and damage to goods in transit, delays and the tracing of delayed shipments, the auditing of freight bills for overcharges, the recovery for damage and overcharge by claims against the railroads, and other subjects of equal or greater importance, will be treated separately.

## CHAPTER II

## PRINCIPLES OF FREIGHT CLASSIFICATION

Freight classification is the basis of all freight transportation charges, therefore a study of freight classification methods and principles is fundamentally necessary to a practical understanding of freight rate matters.

**“Transportation”  
Defined**

The best understanding of present classification and rate making principles and methods may be gained by careful consideration of their origin and development. The term “transportation” today usually means “railroads”, but one hundred years ago there were no railroads. Transportation was then entirely different in character and extent. When steam became the motive power and iron rails were found practicable, transportation methods were revolutionized and the combined use of steam and rails was at once expected to yield better service at less cost.

That expectation complicated the rate making situation in the beginning because certain of the State legislatures, in granting charters, assumed that the newly invented steam railroads could and should render transportation service for less than shippers had been paying for wagon hauls and therefore it was arbitrarily decreed that the railroads' charges or rates should be less than the established wagon and turnpike tolls. That deprived the pioneer rate makers of the only basis or precedent upon which to found a new system of rates. The various states imposed various percentages of the wagon rates as the maxima to be charged by the railroads and whereas there had been some uniformity in the wagon haul rates there was none permitted in the newly established railroad rates.

**Growth of  
Classification**

The necessity of classification of freight did not at first appear, but was recognized as rail lines extended and multiplied. It was discovered that the practice of charging by the cubic foot for light and bulky articles, and by the 100 pounds for heavy articles, as had been the wagon haul basis, was unsatisfactory because of the difficulty of assigning many articles to either class. Railroad development rapidly multiplied the number of commodities of-

ferred for carriage and increased the volume. The new traffic was different in kind, quality, bulk, weight, value and packing and those elements were considered in making the first classification. Subsequently the original distinction between light and bulky articles and heavy articles, has been partly submerged by distinctions between articles crude, rough or finished; liquid or solid; knocked down or set up; loose or in bulk; nested or in boxes, crates or barrels; if vegetables, whether green or dry, dessicated or evaporated; market or invoice values; declared or released values; distance and season of haul; quantity and direction of shipment; whether competitive or non-competitive; volume per year; kind of cars required; and many other things.

Rates per cord, per dozen, per cubic foot, per bushel, barrel or any unit except per 100 pounds were soon discontinued and, as railroads continued to extend and multiply, the varieties of traffic offered for transportation and the complications of classification and rate making increased each year until today we have a situation that almost baffles explanation or description.

### **Three Major Classification Territories**

The United States is now divided into three major classification territories, i. e., Official, Southern and Western. The Official Classification territory is that east of the Mississippi river and north of the Ohio and Potomac rivers; the Southern Classification territory is that east of the Mississippi river and south of the Ohio and Potomac rivers; and the Western Classification territory is west of Chicago, Lake Michigan, and the Mississippi river.

To, from and between points in each of the above described territories many rates apply that are exceptions to or departures from the various classifications. Such rates are known as commodity rates and are almost invariably lower than class rates, being special rates presumably established on account of peculiar circumstances or conditions. Commodity rates are always in the nature of preference.

### **Classifications Made by R. R. Committees**

The classifications are made by committees composed of traffic representatives of the principal railroads in each



territory. The committees meet at various places about four times each year except that members of the Consolidated Classification Committee are in constant session in Chicago. Shippers are heard at such meetings and when changes in or additions to any classification are desired a petition therefor must be filed with the committee. Such petitions are docketed for consideration at the regular meetings and the petitioners are expected to appear and submit full information about weights, values, dimensions and other elements of classification in order that the committee may determine therefrom a proper description and rating.

### Classification of Furniture

Classification principles and methods have always operated to place and keep furniture among the highest rated descriptions of traffic moving in carload and less-than-carload quantities. The earliest classifications made furniture subject to the highest ratings then in force. For example: A freight classification issued in 1855 by a southern railroad grouped "hats, bonnets, saddles, furniture, pianos, tea, and other light articles," under the first class rating which was then the highest rating. Another classification dated January 20, 1868, rates bureaus, bedsteads, chairs, lounges, sofas, tables, wardrobes, washstands, what-nots, and hat racks, at double first class rates.

Today the freight classification contains approximately 11,000 less-than-carload ratings and 5,000 carload ratings, of which about 1,700 apply to the transportation of furniture. In less-than-carload quantities furniture is generally rated first class, and multiples thereof, as high as three times first class. Relatively few articles of furniture are rated below first class in less-than-carloads. The carload ratings generally range from fourth class up to first class.

The great number of ratings now provided for application to furniture principally results from the increased tendency each year, during the past twenty years, to make classification distinctions between articles because of relatively slight differences in weight per cubic foot, as packed for shipment, value per pound, and manner of packing, i. e., whether wrapped, crated, or boxed. Also the advent of reed and fiber furniture, and of metal furniture, and the increased production each year of new and different articles of furniture, have contributed to the multiplicity of furniture classification descriptions and ratings. A re-

verse tendency toward simplicity of classification would be altogether desirable if that could be induced, but in view of the constantly changing styles of furniture, which directly affect its transportation characteristics, a simplification of the freight classification could only be accomplished by more liberal groupings of articles under one general description and rating for each group, and that would suggest higher ratings on many articles, according to the carriers' classification principles and methods, whereas the shippers are constantly seeking reductions in classification and ratings.

Many important changes in all freight classifications may be expected in the near future and furniture classification in particular may be substantially changed within two years as the result of a special investigation of furniture transportation that is now being made by the Interstate Commerce Commission.

### CHAPTER III

#### FREIGHT RATES AND PRINCIPLES AND METHODS OF FREIGHT RATE CONSTRUCTION

##### The Factor of Distance

The United States has frequently been referred to as being a country of magnificent distances. That is particularly applicable to railroad freight hauls. The railroad mileage of this country, more than 250,000 miles, greatly exceeds that of all the rest of the world, and in no other country is the average distance of freight haul as great. In that connection the public has often been reminded by the advocates of higher freight rates that the "average rate per ton per mile is and always has been lower in the United States than in any other country of the world." That is true and at the same time it is mathematically inevitable, because the "average rate per ton mile" is determined by using the average distance of haul as the divisor, and in this country the average distance of haul is so much greater than is geographically possible in any other country that has substantial railroad mileage and development as to naturally and inevitably produce a lower average rate per ton mile.

The topography, climate, natural resources, population, and agricultural and industrial conditions of the United

States have such a wide range of variance that not only must railroads be differently constructed and operated but, to serve the needs of the country's commerce adequately and fairly, the rates, rules and practices of the carriers must be adjusted to those differing conditions. To facilitate such adjustments of freight rates the country has been divided into several rate territories. The principal divisions of the country for rate making purposes are hereinafter shown (see page 577).

### **Elements, Factors and Principles of Freight Rate Construction**

The circumstances and conditions of furniture transportation, and the transportation characteristics of the traffic that affect the carrier's burden, which are principally considered as being rate-making factors are:

The cost to the carrier of providing the service.  
The value of the service to the shipper as indicated in part by the value of the article.

Competitive conditions.

Character and condition of the article, whether in partly manufactured state or finished.

Weight density per cubic foot as packed for shipment.

Value as affecting the carrier's liability if lost or damaged in transit.

Inherent liability to loss or damage in transit.

Distance and direction of movement.

Manner and extent of packing for shipment.

Possibilities of heavy loading per car.

Volume of movement and whether or not movement is constant or seasonal or sporadic.

Marketing or distribution of the article as indicating probable distances of haul.

Principal origins and destinations of the shipments.

Whether special cars or other special facilities or services are required.

Whether empty car hauls are involved.

Rates on similar articles and on competing articles.

Commercial conditions as affecting the weight or quantity to be established as carload minimum.

Other things present themselves for consideration in connection with the fixing of rates, particularly so with respect of new articles of furniture that constantly appear.

The order of importance of the recognized factors of

ratemaking is different for the different commodities. They do not all present themselves in connection with every description of traffic, and their relative importance is variable. Articles that move wholly on class rates have had careful consideration of their transportation characteristics in the process of their classification and have been assigned first, second, third, or some other "class" deemed appropriate by the classification committees. There are many descriptions of traffic that move practically without exception on specific rates which are usually termed commodity rates, such as brick and other clay products, coal, gravel, ice, sand, stone (crushed), and other heavy loading commodities that move in great volume. The number of specific commodity rates has been greatly reduced during recent years. Many products of manufacture that were formerly accorded preferential commodity rates in the making of which practically all standard principles of rate construction were disregarded, usually because of competition between railroads, are now required to pay full class rates or specific percentages of class rates.

The ratemaking tendencies of recent years have been toward distance or mileage scales of class rates and elimination of commodity rates. Contrary to the policy of former years distance has become a dominant factor. Commodity rates originally made to promote the development of particular industries, or of the natural resources of particular localities, or to assist the shippers of one locality to compete with those of another served by different and competing railroads, and therefore largely made without regard to distances, costs of service, and other things directly affecting the carriers' revenues, have been extensively cancelled or readjusted to fixed percentages of the class rates.

### **Consideration of Service Costs**

During recent years, and particularly since 1920, freight rates have been made and readjusted with very careful consideration of such approximations and estimates of costs of service as the railroads have been able to provide. Theoretically all freight rates and charges should be made to cover costs and produce a net revenue sufficient to properly contribute to a fair return upon each carrier's investment. As a practical matter it has not yet been found possible to exactly determine the costs of service. Substantial progress is being made in the direction of fair

approximations of service costs, but freight rate construction continues to be more a matter of judgment than a matter of formula.

A purely scientific freight rate structure, if possible of invention and establishment, would very seriously disturb the industrial and commercial development of this country. A great many of our most important industries would be cut off from their sources of material supply, and shut out of their most important markets. Industrial locations that originally were logical and highly advantageous because of adjacency to natural resources for raw materials are now illogical through exhaustion of those resources, and the necessity of cessation of operation or costly removal to other locations has been averted only by freight rate adjustments that would be destroyed by scientific rate making. Many other industries were illogically located in their beginning and owe their development and existence to freight rate adjustments that were made to fit their needs during the earlier years of railroad development when freight rates were not regulated by the government as they are today. An old definition of a "reasonable" rate is "a rate that was made for a reason."

## CHAPTER IV

### FURNITURE RATES

Furniture rates, carload and less-than-carload, are among the highest rates generally applying to any really important description of traffic. One reason for that is that furniture moves extensively on class rates, and on the higher classes, i.e., first, second and third classes, and multiples of first class. During the past 10 years the class rates have been several times increased by percentages such as, in eastern or official classification territory, the 15% and 25% increases of 1918, and the 40% increase of 1920, with only a 10% reduction in 1922. In southern classification territory there was no 15% increase in 1918, and only a 25% increase in 1920. In western classification territory there was no 15% increase in 1918, and only a 35% increase in 1920. The 10% reduction of July 1st, 1922, was made in all three territories.

The percentage method of advancing rates automatically made greater increases in the higher class rates on which furniture moves than on the lower class rates applying to other descriptions of traffic. For example:

### Chicago-New York First Class Rate

Date	Increases and Reductions	Rate Per 100 Lbs. (Cents)
Jan. 1, 1918		78.8
May 15, 1918	15% Increase	90.5
June 25, 1918	25% Increase	113.
Aug. 26, 1920	40% Increase	158.
July 1, 1922	10% Reduction	142.

**Note:** The present first class rate of 142 cents per 100 pounds is 180 per cent of the 1918 rate of 78.8 cents, an increase of 63.2 cents per 100 pounds. On a piece of furniture classified double first class the increase in the rate would be \$1.26 per 100 pounds.

### FOR COMPARISON

### Chicago-New York Fourth Class Rate

Date	Increases and Reductions	Rate Per 100 Lbs. (Cents)
Jan. 1, 1918		36.8
May 15, 1918	15% Increase	42.5
June 25, 1918	25% Increase	53.
Aug. 26, 1920	40% Increase	74.
July 1, 1922	10% Reduction	66.

**Note:** The present fourth class rate of 66 cents is also 180 per cent of the 1918 rate of 36.8 cents but the difference in cents per 100 pounds is 29.2 cents, or 34 cents per 100 pounds less than the 80 per cent increase in the first class rate.

The foregoing example clearly indicates the extent to which the percentage increases of 1918 and 1920 imposed greater freight transportation costs on furniture than on other and lower rated articles.

Another reason for the present high levels of furniture rates is that a great many furniture shippers have been willing to accept high rates per 100 pounds in order to obtain low carload minima. Preferring carload service because of its greater convenience and dispatch and reduced liability of damage in transit, as compared with less-than-carload service, and being unable or unwilling to load cars heavily, many furniture shippers have withheld opposition to the relatively high classifications and rates in apprehension of increased carload minima as an inevitable consequence of lower rates.

In that connection it is noteworthy that contemporaneous increasing of the rate per 100 pounds and reduction of the carload minimum weight, or the increasing of the minimum and reduction of the rate, do not mechanically produce rates and charges that are wholly just and reasonable. The carload transportation of furniture in lieu of its less-than-carload handling, possesses many advantages in which the carriers share as greatly as do the shippers. Increased labor costs have made an enormous difference to the carriers in their costs of providing less-than-carload service. The handling of furniture through their originating and delivering freight warehouses, and through transfer points enroute, costs the carriers a great deal more for labor than it did several years ago, to say nothing of liability of damage, clerical work, and other burdens of performing the less-than-carload transportation service.

Therefore a great many carload rates on furniture may fairly be challenged as not truly reflecting the advantages to the carriers of carload shipping of furniture in lieu of less-than-carload or "open freight" forwarding.

### **From the R. R. Viewpoint**

In defense of their high rates on furniture the representatives of the railroads have for many years advanced more or less stereotyped claims and contentions such as, for example:

"Furniture is very light and bulky, extremely fragile, and productive of heavy claims for loss and damage."

"Enough furniture cannot be loaded into a box car to produce revenue equal to handling costs except on a very high level of rates per 100 pounds and, contemporaneously, a carload minimum weight that will produce a substantial minimum charge per car."

"Furniture requires very special handling at freight terminals and transfer points because of its extreme susceptibility to damage."

"Furniture requires great care in loading with other freight in cars at freight terminals and transfer points, and occupies a great amount of space in proportion to its weight density."

"Furniture requires large and specially constructed cars."

"Furniture is a luxury."

"Furniture is retailed to the public at prices which



so greatly exceed the factory prices as to make freight rates and charges a negligible item of expense in the furniture business."

The foregoing and a great deal more of the same nature has been stated and restated by railroad witnesses before the Interstate Commerce Commission; by railroad attorneys in their briefs; in meetings of railroad classification and rate committees; by railroad officers when addressing shippers; and in railroad literature or printed propaganda.

At this time all classifications, rates, rules, packing requirements, carload minima, and everything that in any way or degree affects the measure of the charges now exacted by the railroads for the freight transportation of furniture of every kind and description, in carloads and in less-than-carloads, to, from, and between all points in the United States, are under investigation by the Interstate Commerce Commission as a part of the so-called "Rate Structure Investigation", Docket No. 17,000, which was ordered by the Sixty-eighth Congress in the "Hoch-Smith Resolution" as hereinafter described.

### **The Hoch-Smith Resolution**

The Hoch-Smith Resolution, passed by the Sixty-eighth Congress as Public Resolution No. 46, and approved January 30, 1925, lays upon the Interstate Commerce Commission the mandate of Congress requiring the Commission to make a thorough investigation of the entire freight rate structure of the United States, to make such changes therein as the investigation may discover as being necessary to the correction of existing defects, and "to effect with the least practicable delay such lawful changes in the rate structure of the country as will promote the freedom of movement by common carriers of the products of agriculture \* \* \* \*, at the lowest possible lawful rates compatible with the maintenance of adequate transportation service."

### **Of Nation-Wide Interest**

Under that mandate of Congress the Interstate Commerce Commission established its "Rate Structure Investigation", its Docket No. 17,000, by an order dated March 12, 1925, and subsequently has made substantial progress therein. The potentialities of the Hoch-Smith Resolution



are now so obviously revolutionary of all existing freight rate principles and conditions that the decision of the Interstate Commerce Commission in a very recent case, July 20, 1927, Docket No. 19,130, California Growers' & Shippers' Protective League vs. Southern Pacific Company, et. al., reported at 129 I. C. C. 25, is a matter of nation-wide interest and importance. Every freight shipper and receiver of goods other than agricultural should appreciate the menace of greatly increased costs of transportation that is revealed by the language of the Commission's decision in that case. The Commission said, "While undoubtedly overproduction and distributing practices are factors in this situation (the depression of the deciduous fruit industry), the essential fact still remains that the industry is in serious financial straits." Also, "The resolution (Hoch-Smith) is in effect a direction to us to give to agricultural commodities affected by depression the lowest rates that it is possible to give without running counter to the provisions of the Interstate Commerce Act and carriers' rights under the Constitution." One member of the Commission, in an individual but concurring opinion, said: "The Hoch-Smith Resolution contains other injunctions to us besides that which requires the lowest possible lawful rate on products of agriculture suffering from depression. Twice the resolution instructs us that in adjusting rates care shall be taken to maintain 'an adequate system of transportation'. If these words mean anything they mean that, broadly speaking, we must shift some of the burden now borne by agricultural products suffering from depression to other classes of traffic."

No statement of the principles and methods of rate-making that have developed and prevailed in the past, and are supposedly important today, could possibly be helpfully informative unless presented in the full light of the Hoch-Smith Resolution, and of what is the most important decision under that resolution yet rendered, i. e., the one from which the foregoing quotations are made. It should be borne in mind that the primary object of the Hoch-Smith Resolution, as it is now interpreted by the Interstate Commerce Commission, is to modify freight rates for the benefit of the farmer. However, the resolution requires that be done without impairment of the carriers' revenues. Obviously any substantial reductions of the revenues derived by the carriers from the transportation of agricultural products must be compensated by increased revenues from other descriptions of traffic. It follows

that the principles and methods of freight rate construction hereinbefore stated cannot be observed in the future as they have been in the past, but it is impossible now to foresee what will be the re-arrangement of the order of their importance, what factors will be discarded, or what new elements, principles, and methods will be employed.

Ever since the passage and approval of the Hoch-Smith Resolution shippers and carriers have been apprehensive of a too narrow interpretation thereof, and the majority decision of the Commission in the California Growers' & Shippers case, Docket No. 19,130, seems to justify those apprehensions. The one member of the Commission herein previously quoted as having directed attention to the fact of the Resolution containing other injunctions to the Commission than the one requiring preferential rate treatment of agricultural traffic did not mention the first declaration of the Resolution which is: "That it is hereby declared to be the true policy in rate-making to be pursued by the Interstate Commerce Commission in adjusting freight rates, that the conditions which at any time prevail in our several industries should be considered in so far as it is legally possible to do so, to the end that commodities may freely move." The Resolution also provides that in readjusting rates the Commission shall "give due regard, among other factors, to the general and comparative levels in market value of the various classes and kinds of commodities as indicated over a reasonable period of years, to a natural and proper development of the country as a whole, and to the maintenance of an adequate system of transportation." To use the language of the Commissioner previously quoted: "If these words mean anything they mean that" the Commission must proceed with due regard to conditions existing in all industries rather than in that of agriculture alone.

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## CHAPTER V

### THE FURNITURE INVESTIGATION

Notwithstanding the importance of regulations and restrictions imposed by the United States Railroad Administration during the World War period of federal control of railroads, and the enormous increases in the rates applying to the freight transportation of furniture that were made effective during and immediately following the termination of that period, the furniture business, manufactur-

ing, jobbing and retailing, has never been confronted with any matter of transportation that has approached the importance of the impending disturbance and readjustment of furniture freight classifications, rates, rules and charges, and of freight rate relationships between competing centers and districts of furniture manufacture, that must inevitably result from any substantial fulfillment of the purpose of the Hoch-Smith Resolution as it is now interpreted.

Part V of the Rate Structure Investigation, Interstate Commerce Commission Docket No. 17,000, is the "Furniture Investigation", Docket No. 18,323. Whereas the furniture investigation was initiated by the Commission May 10, 1926, as an independent investigation prompted by the constantly and rapidly increasing volume of complaints by shippers against furniture freight rates and charges, it is significant that it was subsequently made Part V of the Rate Structure Investigation under the Hoch-Smith Resolution. The main purpose of the Rate Structure Investigation is to discover possibilities of increasing rates on other descriptions of traffic to offset reductions in the rates on farm products. Furniture shippers face the imperative necessity of showing that the furniture traffic is already contributing more than its share to the aggregate revenues of the carriers, and that "in the public interest" furniture transportation costs should be reduced instead of increased.

Furniture manufacturers, jobbers and dealers of all parts of the country are now (January, 1928), preparing for hearings before the Interstate Commerce Commission wherein every possible and practicable effort will be made to successfully oppose the making of increases in the freight rates and charges on furniture as an offset to reductions in the rates on farm products.

In that connection it is interesting to note that the entire furniture traffic of the United States contributed only three-tenths of one per cent of the aggregate freight revenues of the railroads during the year 1923, according to an analysis made by the Interstate Commerce Commission's Bureau of Statistics. During the year 1925, the latest for which these statistics are now available, the total tonnage carried by the railroads was 2,304,274,746 net tons, carloads and less-than-carloads. Of that total 11.34 per cent, or 261,349,319 tons, consisted of products of agriculture including animals and products, whereas only eleven one hundredths of one per cent, or 2,511,044 net tons, was new furniture. In carloads, agricultural traffic

was 13,789,676 carloads and new furniture was 290,364 cars. Obviously the difference in the volume of traffic would not permit the furniture traffic to produce very much additional revenue as an offset to reduced rates and revenues on agricultural traffic except by increasing the furniture rates several hundred per cent. How could 290,000 carloads be made to produce enough additional revenue to make any perceptible offset to even very slight reductions of the charges on approximately 14,000,000 carloads except by increases in rates so enormous as to be prohibitive of shipment? That would not only defeat the object of the increased rates but would also work serious damage if not complete destruction upon one of the "several" industries referred to in the Resolution.

Such facts and all the circumstances and conditions of the furniture business must be fully developed during the hearings before the Commission in the "Furniture Investigation."

## CHAPTER VI

### IMPROVED METHODS OF SHIPPING FURNITURE

#### **Concentration of Shipments**

There have been many improvements in furniture transportation but the outstanding change of recent years, that has benefited both railroads and consignees, is the development of car loading service at important centers of furniture manufacture.

Grand Rapids, Mich., was the first to properly and completely organize and systematize the concentration of less-than-carload shipments of furniture for carload forwarding. During the early part of 1910 the Grand Rapids manufacturers established their own carloading agency and inaugurated a carloading service that was wholly without precedent in that it was thoroughly systematized, in that it kept the dealers fully informed of the movement of their shipments, and in that it was rendered without charge to the dealers.

#### **Carloading Agencies**

Prior to that action by the Grand Rapids manufacturers, there were various and some irresponsible carloading agencies, and some factories having railroad sidetracks who

made a practice of combining goods from other factories with their own to make up carload shipments, but there was no such systematic and responsible arrangement as that established in March, 1910, under the name of the Carloading Department of the Furniture Manufacturers' Association of Grand Rapids.

The carloading agencies then operating as individual enterprises at Grand Rapids, Chicago and a few other points, made very substantial charges for their services and did not always render service that was wholly dependable or otherwise satisfactory. Many furniture dealers preferred the delays, expense, and hazards of "open freight" or less-than-carload freight transportation to the uncertainties and expense of such carloading or "pool car forwarding" agencies as were then available.

Also, the pool car services then provided by the various agencies were only available for shipments to western points, because those agencies made their profits out of the "spreads" or differences between the carload and the less-than-carload rates and to eastern points the rate differences were not sufficient to make it profitable to assemble and load pool cars in that direction. Therefore the eastern dealers could not obtain carloading or pool car service except to the extent that factories having railroad track connections could accommodate them and the capacities of the factory facilities were limited and inadequate. The service inaugurated by the Grand Rapids manufacturers was not dependent on differences in rates, and was extended in all directions without charge to the dealers on Grand Rapids goods.

The Grand Rapids carloading service proved so efficient and otherwise satisfactory that it was very rapidly developed to its present capacity and scope, entirely at the expense of the manufacturers. At this time about 70 per cent of the furniture shipped from Grand Rapids moves through the Carloading Department.

### **Growth of Concentration Method**

Subsequently similar carloading facilities and service have been established at Chicago; Evansville, Ind.; Jamestown, N. Y.; Rockford, Ill. and other furniture manufacturing centers, and the generally increased transportation of furniture in carload quantities instead of as less-than-carload shipments has greatly benefitted the furniture shippers, consignees, and carriers. The principal benefits to the furni-

ture dealers are those of prompt and dependable forwarding of goods, greater dispatch and safety in transit, and greatly improved distribution or delivery service at destinations.

The advantages and benefits to the carriers are enormous. If the greatly increased furniture traffic of recent years had not been so extensively converted from less-than-carload to carload movement, by the various carloading agencies, the carriers would have found their freight handling warehouses and other facilities seriously inadequate and at the principal centers of furniture production they would have been compelled to greatly enlarge and extend their facilities. Such an enormous volume of less-than-carload furniture traffic would have greatly increased the carriers' labor expense, and would have produced increased volume of claims for loss and damage. Notwithstanding the higher rates on furniture in less-than-carloads, it is doubtful whether any railroad would prefer less-than-carload furniture traffic to carload furniture traffic, and the highest officers of several of the principal railroads have said that it is beneficial to the carriers to have furniture move so largely in carloads as the result of the maintenance and operation of the Carloading Department at Grand Rapids and similar agencies at other furniture shipping points.

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## CHAPTER VII

### THE IMPORTANCE OF FURNITURE TRANSPORTATION

It may fairly be said that the transportation of furniture does not rank very far below the transportation of food and fuel in its importance to the public. The distribution of furniture is as important as its manufacture and wide distribution requires railroad freight transportation service. Household furniture makes our homes and our homes make our citizens. Store furniture of modern design and utility makes it possible for our great merchandising establishments to carry their stocks in enormous volume and wide diversity, and to efficiently and economically serve the convenience and comfort of the public. Laboratory and other educational furniture make possible the mass education in our schools and colleges of thousands of intelligent and ambitious boys, girls, young men and young women in such vitally important matters as, for example, the chemistry of soils and the chemistry of the

basic materials such as steel and rubber which are so important in our daily life and our industrial development and welfare.

Furniture is a very important factor in our individual, community, state, and national life and welfare, and everyone having to do with the manufacture and distribution of furniture is doing work of great importance to the public.

Therefore the transportation of furniture from factories to stores is something to be studied, understood and improved, something to be viewed as being necessary in a degree that should inspire the closest possible co-operation between shippers and carriers to the end that the railroad transportation of furniture be as efficient and economical as any freight transportation service can become.

In the pages immediately following will be found much that is important in connection with the incidents of furniture transportation such as packing, marking, billing, routing, and claims for overcharge and damage. Also a description of the rate territories and a glossary of transportation terms.

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## CHAPTER VIII

### FURNITURE PACKING

#### **Importance of Specifications**

Furniture packing requirements and specifications have been a very important part of the freight classifications of furniture since December 30, 1919, when the first Consolidated Freight Classification established the special provisions for furniture packing that, with some additions and changes, are now in force and made those requirements and specifications a part of the furniture classification itself. Those packing requirements are all set forth in the following reproduction of the furniture classification.

It will be noted that the packing requirements are the same for carload and less-than-carload shipments of furniture. That is not generally true of other commodities many of which may be shipped in carloads with much less packing than in less-than-carloads, and the carload ratings on some commodities do not require any packing.

While the railroads have generally imposed greater packing requirements on all commodities during the past 10 or 15 years, furniture has been particularly the target for



drastic packing rules. Present packing requirements greatly increase furniture shipping costs. The costs of packing materials and labor, combined with the increase in the shipping weights, due to the weights of the packing which now range from 38 per cent to 47 per cent of the total weights upon which transportation charges are assessed, have become very important items of furniture shipping expense.

### **Benefits of Packing Regulations**

The benefits to the railroads are substantial. The increased shipping weights upon which the furniture rates apply are equivalent to some increase in rates and charges. The carriers' hazards of damage to furniture in transit are substantially reduced or else there is no justification for the increased packing requirements. It is the fact, however, that the carriers have less damage claims on furniture.

It is the shipper's duty to properly prepare his goods for transportation, and it is generally true of furniture manufacturers that they voluntarily pack their shipments in the best manner possible because they fully appreciate the customer's disappointment and serious disadvantage when furniture shipments reach their destinations in damaged condition. It is also recognized that the loss and inconvenience of damage to furniture in transit can never be wholly recovered by claims against the railroads.

### **Economy of Good Packing**

Furniture manufacturers employ expert packers and without any imposition of packing requirements and specifications by the carriers it is probable that furniture shipments would be as well packed as they are now, but the same degree of protection against damage in transit would be accomplished with less packing expense, and without so greatly increasing the weights upon which the furniture rates are assessed.

Shipments of furniture that are inspected by the carriers' representatives and found to be packed otherwise than in strict and technical compliance with the classification requirements and specifications are penalized by the assessment of higher rates.



## Damage in Handling

The principal causes of damage to furniture shipments in the possession of the carriers have always been improper handling at freight houses and transfer points, improper loading in cars, and rough handling of cars in switching and train movements. No shipper could possibly pack furniture in such a manner as to fully protect it against damage from those causes.

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## CHAPTER IX

### OUTLINE OF FURNITURE FREIGHT CLASSIFICATION RULES FOR PACKING

As has heretofore been stated, all rules and regulations for the shipping of furniture by railroad freight were initiated by the carriers and are on file with the Interstate Commerce commission and State Utility commissions. This information is presented to the public and to the shippers in condensed form through what is known as the "Consolidated Freight Classification", a publication of several hundred pages, carefully indexed and annotated and in which important facts and data relative to rates and regulations for the shipping of freight are to be found. The last Consolidated Freight Classification, up to the publication of this Manual, is known as "No. 5". It was issued October 24, 1927, and became effective December 15, 1927.

The most valuable information contained in this publication is the attention given to packing of goods shipped by freight. It tells explicitly how furniture should be packed, the type of package which must be used, and all that must be known by the shippers of furniture in order to obtain the lowest rates and the best service.

Through the courtesy of the Consolidated Freight Classification committee, the principal rules applying to the packing of furniture are reproduced herewith. In view of the fact, however, that these rules may be changed on short notice, and that freight tariffs are equally transient, the reader is urged not to accept them as official information, but merely as pointing to the procedure necessary to the best handling of furniture in transit. Neither are these rules complete in themselves, having approxi-

mately thirty-one exceptions, or notes, as set forth by Classification No. 5.

The Consolidated Freight Classification may be obtained at the freight offices of any carrier or through application to R. C. Fyfe, chairman of the Consolidated Classification committee and agent for lines in Western Classification, 404 Union Station, Chicago; D. T. Lawrence, agent for lines in Official Classification, 143 Liberty street, New York, N. Y.; or E. H. Dulaney, agent for lines in Southern Classification, 101 Marietta street, Atlanta, Ga.

Following is the manner in which the rules relating to the packing of furniture for freight shipment are set forth as published in Consolidated Freight Classification No. 5.

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**FURNITURE, see Notes 1 and 2:**

**Note 1**—Unless otherwise provided in separate description of articles, furniture must be packed in accordance with the following requirements; when these requirements are not fully complied with, rating on furniture in that particular form of shipment, but which does not comply with the following requirements, will be one class higher than when they are fully complied with. This penalty does not apply to furniture in any other form of shipment than referred to in this note.

**(a) When "wrapped in paper" is specified:**

All finished surfaces must be covered with paper as follows:

Tops first covered with two thicknesses of heavy felt, sulphite, rag or rope stock paper extending not less than two inches over the edges of backs, ends and fronts; or one thickness of heavy felt paper with pads or padding of excelsior or its equivalent.

Fronts and ends first covered with one thickness of heavy felt, sulphite, rag or rope stock paper.

In addition to the foregoing, tops, fronts, ends and all finished surfaces, including feet or legs, must be further covered with two thicknesses of kraft paper weighing not less than 25 pounds per ream (480 sheets, 24x36 inches), or two thicknesses of sulphite, rag or rope stock paper weighing not less than 50 pounds per ream (480 sheets, 24x36 inches).

Articles for which "wrapped in paper" is provided in

packing specifications will be accepted when wrapped in fiberboard, pulpboard, double-faced corrugated strawboard, chestnut or pine wood fiberwood as provided in Section (c) of this Note.

**(b) When "wrapped in burlap" is specified:**

Tops, fronts, ends and all finished surfaces, including feet or legs, must first be covered with kraft, sulphite, rag, rope stock or felt paper and pads or padding of excelsior or its equivalent and further covered with burlap weighing not less than 7 ounces to the running yard of 40 inches in width.

**(c) When "wrapped in fiberwood" is specified:**

Tops, fronts, ends and all finished surfaces, including feet or legs, must be covered with fiberboard, pulpboard, double-faced corrugated strawboard, chestnut or pine wood fiberboard having a resistance of not less than 200 pounds to the square inch. Cady or Mullen test.

**(d) When "in crates" is specified:**

Crates must be made with nailed three-way corners and of sound wood free from defects that materially lessen its strength. If made of hardwood, strips must not be less than  $\frac{7}{8} \times 1\frac{7}{8}$  inches; if made of soft wood, strips must not be less than  $\frac{5}{8} \times 2\frac{7}{8}$  inches. Two staples interlocking to form a hinge may be substituted for each nail fastening strips on sides to ends, such staples to be driven through the strips and clinched.

Articles must be securely fastened to the crate by screws or nails or be securely held within the crate by braces or supports and no part of the article shall protrude.

Finished surfaces of articles must be protected from contact with the crate by pads or padding; and be further protected by strips not less than  $\frac{3}{8} \times 2\frac{7}{8}$  inches, or  $\frac{7}{8} \times 1\frac{7}{8}$  inches, not more than 6 inches apart, except that articles having finished flat tops may have tops completely covered by lumber not less than  $\frac{1}{4}$  inch thick, if hardwood, or  $\frac{3}{8}$  inch thick if soft wood.

Unfinished surfaces of articles must be protected by strips. Strips must not be less than  $\frac{1}{4}$  inch thick, if hardwood, or  $\frac{3}{8}$  inch thick, if soft wood, covering not less than 15 per cent of such surfaces. Rough painted or stained surfaces will not be considered finished surfaces; or

**(e) When "in crates" is specified:**

Crates must be made with nailed three-way corners, and of sound wood free from defects that materially lessen its strength. If made of hardwood, strips must be not less than  $\frac{7}{8} \times 1\frac{7}{8}$  inches; and if made of softwood, strips must not be less than  $\frac{5}{8} \times 2\frac{7}{8}$  inches; Provided, that crates constructed of lumber of the following dimensions:

Weight of Crate and Contents	Minimum Size of Members			
	For Framework		For Braces	
	Thickness	Width	Thickness	Width
Up to 25 lbs.	$\frac{3}{4}$ "	$1\frac{1}{2}$ "	$\frac{1}{2}$ " to $\frac{11}{16}$ "	$1\frac{7}{8}$ "
26 to 50 lbs.			$\frac{3}{4}$ " or over	$1\frac{1}{2}$ "
51 to 100 lbs.	$\frac{3}{4}$ "	$1\frac{7}{8}$ "	$\frac{3}{4}$ "	$1\frac{7}{8}$ "
101 to 200 lbs.	$\frac{7}{8}$ "	$1\frac{7}{8}$ "	$\frac{3}{4}$ " to $\frac{13}{16}$ "	$2\frac{1}{8}$ "
201 to 300 lbs.	$\frac{7}{8}$ "	$2\frac{1}{8}$ "	$\frac{7}{8}$ " or over	$1\frac{7}{8}$ "
	$\frac{7}{8}$ "	$2\frac{1}{8}$ "	$\frac{3}{4}$ " to $\frac{13}{16}$ "	$3\frac{7}{8}$ "
	$\frac{7}{8}$ "	$3\frac{7}{8}$ "	$\frac{7}{8}$ " or over	$2\frac{1}{8}$ "
	$\frac{7}{8}$ "	$3\frac{7}{8}$ "	$\frac{3}{4}$ " to $\frac{13}{16}$ "	$4\frac{7}{8}$ "
	$\frac{7}{8}$ "	$3\frac{7}{8}$ "	$\frac{7}{8}$ " or over	$3\frac{7}{8}$ "

may be used if each face, excepting those having an area less than 10% of the total area of the six faces, is provided with a wooden diagonal brace of dimensions as specified in the table or with two diagonal metal straps not less than  $\frac{3}{4} \times 0.015$  inch; when necessitated by commercial variation of manufacture a reduction of  $\frac{1}{8}$  inch below the specified size of lumber may be accepted for frame work and braces.

Articles must be securely fastened to the crate by screws or nails or be securely held within the crate by braces or supports and no part of the articles shall protrude.

Finished surfaces of articles must be protected from contact with the crate by pads or padding; and be further protected by strips not less than  $\frac{3}{8} \times 2\frac{7}{8}$  inches, or  $\frac{7}{8} \times 1\frac{7}{8}$  inches, not more than 6 inches apart, except that articles having finished flat tops may have tops completely covered by lumber not less than  $\frac{1}{4}$  inch thick, if hardwood, or  $\frac{3}{8}$  inch thick, if soft wood: Provided, that lumber of the following minimum dimensions:

Length of Span of Feet	Required Minimum Thickness in Inches
0 to 2	$\frac{1}{4}$
2 to 3	$\frac{3}{8}$
3 to 4	$\frac{1}{2}$
4 to 5	$\frac{5}{8}$

may be used to protect finished surfaces, the lumber being at least  $2\frac{7}{8}$  inches wide and so placed that the spaces between the pieces do not exceed 3 inches.

Unfinished surfaces of articles must be protected by strips. Strips must not be less than  $\frac{1}{4}$  inch thick, if hardwood, or  $\frac{3}{8}$  inch thick, if soft wood, covering not less than 15 per cent of such surfaces: Provided, that strips  $\frac{1}{4}$  inch thick may be used on spans of 24 inches or less. Rough painted or stained surfaces will not be considered finished surfaces, or

(f) In cleated plywood crates made with nailed three-way corners: the plywood completely covering all finished surfaces of the article. Unfinished surfaces must be protected with strips of size specified for crates covering not less than 15 per cent of the surface.

**Note 2**—Detachable mirrors, glass tops, racks, standards or toilets, forming part of chiffoniers, bureaus, dressers, dressing or toilet tables, washstands or similar articles must be detached and packed in same box or crate with the article, or packed in separate boxes or crates, but crates containing such detached mirrors, racks, standards or toilets will be subject to Note 3.

**Note 3**—When reference is made to note 3, such articles may also be accepted in crates, conforming to specifications of Rule 40, Section 2.

## CHAPTER X

### MARKING OF FURNITURE SHIPMENTS

Prompt movement and proper delivery of furniture shipments, in less-than-carloads, depends very largely upon their marking. Every box, crate, or other package, composing an "open freight" shipment of furniture should be plainly marked to show:

The name of the shipper and the point from which the shipment is made.

The consignee's name and address, and the destination of the shipment.

County should be indicated if there is more than one town of the same name in the same state.

The weight of the package.

The desired delivery at destination.

## Method of Marking

Stencil marking is the best. Whether brush, stencil, stamp, crayon, labels or tags are used, the marking should be clearly legible. Great care should be taken to provide against markings becoming blurred, or being wholly or partly erased. Labels and tags should be securely pasted, tacked and wired.

If the packages contain glass, that should be indicated. If their safe movement requires that they should be placed in a certain position in cars, that should be indicated.

All previous markings should be carefully removed if the packages or materials have already been used.

The markings of consignee, destination, and weight should agree with the shipping order or bill of lading.

If the shipment is to be covered by an "Order" bill of lading, the packages should be marked accordingly.

## CHAPTER XI

### THE PROPER DESCRIBING OF SHIPMENTS OF FURNITURE IN BILLS OF LADING

One of the most important things in connection with the shipment of furniture, particularly in less-than-carload quantities, is the describing of the shipments in the shipping orders or bills of lading. Trade names should never be used in lieu of the classification descriptions. Every article composing a shipment should be described according to the classification. Otherwise it is subject to double first class rating as "Furniture, not otherwise indexed by name", whereas under its proper description a lower rate would often apply.

#### Clearness of Name and Address

The thing that really is of first importance, however, is the showing of the name and address of the consignee. Street and number should also be shown if possible, and shipments should not be forwarded to the large cities without that information being shown on the billing and marked on the packages. Whatever else may be wrong with the billing or with the marking of the packages, if the name and address of the consignee is properly shown the shipment will reach its correct destination and other errors, if any, can be corrected at destination.

No estimated or "guessed" weights should be indicated on the billing, but whenever possible the exact weight of each box, crate or bundle should be determined by the shipper and shown on the billing as well as on the package. That is a very substantial protection against overcharge in weight.

### **Care Against Errors**

Bills of lading should always be legible, and carbons should frequently be renewed to produce legible copies. Great care should be taken to prevent errors in consignee, destination, description and enumeration of articles, and in the indication of how the articles are packed. There are substantial differences in ratings for articles boxed and the same articles crated or wrapped. It should be remembered that the shipment will travel and be rated according to the bill of lading.

It should also be remembered that misrepresentation of shipments or false billing, and mis-statement of weights, for the purpose of obtaining lower classification and ratings than should apply, are misdemeanors for which heavy penalties are assessed.

### **Bill of Lading Shipper's Contract**

The bill of lading is the shipper's contract with the carrier for the transportation of the goods to the indicated destination and consignee. The terms and conditions of that contract are printed on the reverse side of the standard bill of lading (and no other form should be used). Those terms and conditions are accepted by the shipper when he signs the bill of lading, and they should be very carefully studied and fully understood by all shippers.

There should be no alterations or erasures made in shipping orders or bills of lading, and no over, short or damage notations, unless they appear on the original, the shipper's copy and the carrier's copy over the railroad agent's signature.

### **"Straight" and "Order" Forms**

There are two forms of standard bills of lading. One is the "Straight" bill of lading which, as the name indicates, is used for direct consignments, and the other is

the "Order" bill of lading which is used when delivery of the shipment at destination is to be withheld until a draft, which the shipper has attached to the original bill of lading and forwarded to a bank at the destination of the shipment, has been paid by the consignee and the original bill of lading surrendered by the consignee to the delivering carrier.

If a rate is inserted in the bill of lading by the shipper and is a rate that is in force via any possible route, it is the duty of the carrier to so route the shipment, even though there may be a lower rate via some other route. If a route is designated by the shipper, and it is a possible route, the carrier is bound to observe that routing even though it subjects the shipment to a higher rate than would apply via some other route. If a rate and a route are both shown by the shipper, they must be observed by the carrier provided they do not conflict, but if the rate shown does not apply via the route indicated the carrier's agent must so advise the shipper and obtain the necessary change in either the rate or the route. Most important is the fact that if no route and no rate appears in the billing it is the duty of the carrier to forward the shipment via the route over which the lowest published rate applies. For that reason many shippers never route their shipments. That is not always the best method of shipping because although it insures the application of the lowest lawful rate, it does not always result in the shipment reaching destination via the most direct route. The rates are usually the same via all routes, direct and circuitous, and with a relatively small amount of care and effort a shipper may safely route his goods and protect them against frequent transfers enroute and delayed arrivals at their destinations.

## CHAPTER XII

### HOW FURNITURE SHIPMENTS SHOULD BE ROUTED

#### **Straight Routing Best**

The routing of less-than-carload shipments of furniture should always be such as will involve the fewest transfers or rehandlings of the shipment enroute. There is possibility of damage every time a box, crate or other package of furniture is moved from one freight house or freight car to another. The handling of less-than-carload ship-



ments at forwarding and transfer freight stations is not done with skilled labor; the freight handling employes of the railroads are not given special training in the handling of furniture nor of any other kind of freight. It may fairly be said that all freight looks alike to them. Markings on packages such as "Glass", "Handle With Care", and "This Side Up", would have to be shown in several languages to really accomplish their purpose.

### **Routing Carload Shipments**

The routing of carload shipments should always be such as will involve the fewest number of railroads and therefore expedite the shipment as well as avoid handling and rehandling in switching yards at junction points. The breaking up of trains on their arrival at junction or terminal points, the placing of cars in switching "cuts" for movement to interchange tracks via which the shipments are transferred to connecting railroads, the removal of cars from the interchange tracks, and their switching into trains for further movement, all involve risks of rough handling and damage. Those switching movements of carload shipments correspond to freight house and freight transfer handling of less-than-carload shipments, and should be avoided as much as is possible.

A shipper should route his freight as he would route himself for a long journey.

### **Indicate Most Convenient Destination**

One very important thing in connection with the routing of both carload and less-than-carload shipments is the accomplishment of the delivery at destination which is most convenient for the consignee. Particularly in the larger cities and towns, there are frequently several different and sometimes widely separated freight delivery stations and tracks. Two or more customers in one city may be so located as to require deliveries at widely separated freight terminals. It is always advisable to indicate in the billing the delivery at destination that is most convenient to the consignee. That very frequently accomplishes more prompt delivery and reduces the consignee's drayage costs.

Circuitous routing should be avoided because it is a waste of transportation, it delays the delivery of the goods to the customer, and as it involves a greater number of

transfers enroute, it also increases the hazard of damage. Direct routing not only secures better service and reduces the hazards but also benefits the carriers because a shipment that reaches its destination via one, two, or three lines of railroad affords each of those lines better earnings than would be enjoyed by each of four or five lines over which the shipment might have moved.

### **Problem in Large Cities**

Between the larger cities there are usually several possible routes, some of them more direct than the others and there are usually scheduled through trains, and through package or merchandise cars, via some if not all of those routes. At important junction or terminal points, some railroads have direct connections with each other, or joint facilities, whereas other roads reaching the same junctions do not directly connect and can only interchange shipments through an intermediate railroad.

A route via which less-than-carload shipments move satisfactorily may not be as advantageous for carload shipments. On the other hand, a good carload route may prove to be a very unsatisfactory route for less-than-carload shipments.

### **Avoid "Standing" Routing Orders**

Shippers and consignees are urgently solicited by railroad representatives for "routing orders" on prospective shipments, and are frequently urged to give "standing orders" that their shipments be routed via certain lines. Such routing orders should be given, if at all, only when the routing to be specified is a direct and otherwise practicable route, and "standing orders" should never be given because the advantages and disadvantages of specified routes are dependent on fluctuating circumstances and conditions of transportation. A very satisfactory route one day may be extremely disadvantageous the next day or week or month by reason of some change in train or car schedules, by reason of embargo occasioned by congestion of traffic, flood or strike conditions, or by reason of any of numerous other things that affect railroad operation and service.

## **Handicaps of "Splitting" Routings**

Furniture manufacturers are sometimes greatly handicapped in the forwarding of their customers' shipments because of those customers having given several different routing orders on one or more shipments. There have been instances where eight or ten different railroads have presented routing orders covering one shipment. There is no real advantage to be gained by favoring any railroad representative with a routing order just because he requests it. Such requests should be met with inquiry as to what particular advantage in service can be extended in return for the routing order. Of course nothing but service can be given. Sometimes the solicitor of the routing order may be able to give helpful information, or may be sufficiently interested in the business he solicits to give his personal attention to matters of delay in transit, if they occur, or to investigate the delayed settlement of a claim. Or in times of car shortage he may be able to assist the shipper in obtaining a car or cars for the shipments to be covered by the routing order. That is all legitimate co-operation between shipper and carrier. Too frequently, however, a cigar or a story is the only thing the railroad representative gives in return for the routing order.

The proper routing of shipments by either shipper or consignee requires the exercise of good judgment based on correct information and understanding, but it has very substantial advantages. Careless and improper routing causes delays, inconvenience, expense, and general dissatisfaction.

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## **CHAPTER XIII**

### **FURNITURE LOSS AND DAMAGE CLAIMS**

#### **Nature of Claims**

Claims against railroads for damage to furniture shipments usually are for relatively small amounts, averaging less than \$10, but they are sufficiently numerous to make a substantial amount in the aggregate although not enough, however, to justify the carriers in so frequently and heavily emphasizing the liability of furniture to damage in transit.

Statistics compiled by the American Railway association show that a very small percentage of the total amounts paid out by all the railroads annually, in settlement of

claims for loss and damage of every kind and on all commodities, is paid to satisfy furniture claims, and those statistics also show that the principal causes of damage to furniture shipments are rough and otherwise improper handling of the shipments by railroad employes.

### **Causes of Damage**

One careless or otherwise incompetent railroad employe at a freight house or transfer platform, or at the throttle of a switching or train engine, can undo or defeat every effort a great number of furniture shippers can make with the object of so packing and loading their goods as to protect them against damage in transit. The packing requirements and specifications now imposed on furniture shippers could be substantially modified and the furniture manufacturers would voluntarily continue to pack their goods in such a manner as would protect them against the normal risks of freight handling, but no packing rules and methods possible to devise and apply will protect furniture or any other commodity against the damage in transit that results from the errors and negligence of the carriers' employes.

Furniture claims have not increased greatly, in number or amount during recent years, although the volume of furniture shipments has steadily increased from year to year. That may partly be due to improved packing methods, but it probably is due more to the decrease in less-than-carload shipments and increase in carload shipments, than to any changes in packing requirements.

### **Value of "Complete Notation"**

When a shipment of furniture reaches its destination in damaged condition the consignee should insist that a complete notation of the damage be made on the freight bill over the signature of the delivering carrier's agent. Too frequently that is not done. Damaged goods should not be removed from freight terminal nor from car without that notation. There is no legal ground upon which a carrier may refuse to make such a notation.

## Tracing the Damage

If it is a carload shipment that is found to be damaged when the car is opened for unloading, or later in the course of unloading, immediate inspection by a representative of the carrier should be obtained. When a carload shipment is damaged by rough handling in switching or train movement the car itself very often shows evidence of such rough handling, and it should be carefully examined for indications of having been jammed, derailed, knocked off center, or otherwise damaged while containing the furniture shipment. Sometimes chalk marks or cards remaining on the car will indicate that it has been in trouble enroute and sometimes the marks and cards or new boards or fresh paint, will indicate that the car has been repaired enroute. When a carload shipment is found damaged by water due to a leaky roof, the car should be carefully searched for marks, cards or boards indicating that it was known to have a leaky roof before it was placed at origin point to be loaded with furniture.

## Leaky Roofs

Box cars often become leaky while in motion but pass ordinary inspection when not in motion. A car that has leaked and caused damage usually is boarded or otherwise marked as being leaky and may not be immediately repaired but kept in service with the intent of using it only for shipments that will not be damaged by reason of the car's defects. If such a car escapes notice of its condition and is placed for furniture loading, a damage claim is practically certain, and the collection of the claim may be greatly facilitated by a careful examination of the car as soon as the damage is discovered.

## Delays in Transit

Sometimes a carload shipment of furniture is delayed in transit, and sometimes the shipment reaches destination in a car of different number and initial than the one shown in the invoice or bill of lading, due to the shipment having been transferred enroute. In such instances, both of delay and of transfer, there is always great probability of damage to the furniture and a very careful inspection of the goods should be made before their removal from the

car. Concealed damage as well as that externally apparent frequently results from rough handling and transfer of carload shipments.

## **Concealed Damage**

Concealed damage is most frequent in connection with "open freight" or less-than-carload shipments. When a box, crate or other package of furniture shows no exterior signs of damage, and the contents do not rattle or otherwise indicate damage, the consignee of course gives the delivering carrier a clear receipt for the shipment and removes it to his place of business. If damage is discovered when the shipment is unpacked, immediate inspection by a representative of the delivering carrier should be requested and insisted upon. When claims for such concealed damage are made the railroad usually raises the point that it holds a clear receipt for the shipment as being in good order when accepted by the consignee or his drayman, and suggests that the damage occurred between the freight terminal and the place where the goods were unpacked.

## **Methods of Adjustment**

The prompt and satisfactory handling and adjustment of claims is very largely dependent upon how they are prepared and presented by the claimant. An entirely fair and complete statement of all the facts and conditions causing the presentation of the claim, in addition to the bill of lading, freight bill and other documents with which claims must be supported, is always helpful. While at one time many railroads practiced the payment of claims of amounts within certain limitations immediately upon presentation by responsible claimants, with an understanding or under a bond guaranteeing refund of the claim payment if later investigation proved that it should not have been paid, the Interstate Commerce Commission has ruled that it is improper for carriers to pay any claims until after they have been fully investigated and the carrier's liability completely established. Therefore both carrier and claimant are subject to severe penalties if claim payments are made and received without due investigation and complete proof of the carrier's liability. Incidentally, severe penalties are imposed by the Interstate Commerce Act upon shippers

who present false claims whether or not payment of such claims is made.

### **Record of Claims**

A simple but sufficient record of all claims should be maintained. Claims should be consecutively numbered as they are presented and when paid or otherwise disposed of the claim record should be posted accordingly. At regular intervals suitable inquiries should be addressed to the carriers with whom all claims remaining unpaid more than 60 days were originally filed, and such inquiries should also state the carrier's claim department file number. It is the practice of the carriers to acknowledge receipt of a claim by advising the claimant of the file number under which it will be investigated and that number should be immediately entered in the claim record. In this connection it is sometimes helpful toward the proper adjustment of claims, which have not been promptly settled, to bring them to the attention of representatives of the carriers when they call for the purpose of soliciting routing orders. That can be done most effectually by merely suggesting to the solicitor of the routing orders that perhaps he might be able to discover what is delaying payment of the claim or claims and do something to help the matter along.

### **REGULATIONS GOVERNING THE INSPECTION OF FREIGHT AND ADJUSTMENT OF CLAIMS, DAMAGE THEREON**

The following rules and regulations, bearing upon inspection of shipments and claim matters generally, are the result of conferences and agreement between shippers as represented by the National Industrial Traffic League and the carriers as represented by the freight claim division of the American Railway association. Neither shippers nor carriers are legally bound by the agreement and it was accomplished only to provide some desirable uniformity of methods, practices and rules in connection with freight claim matters:

Loss of or damage to contents of packages not definitely known to exist at time of delivery by carrier to consignee may be due to negligence in packing, handling or unpacking or abstraction from containers, and is the subject of frequent claims and controversy. In order to avoid any discrimination and so that practices may be certain and



uniform in the treatment of claims of this character, the following rules are prescribed:

**Rule 1.**—When a package bears indication of having been pilfered while in possession of carrier, it shall be carefully weighed by the delivering agent before delivery and such weight endorsed on the freight bill and a joint inventory of contents of package by carrier and consignee shall be made before delivery or immediately upon receipt by consignee, and claim for shortage so discovered shall be promptly adjusted.

**Rule 2.**—Loss or damage discovered after delivery of shipment to consignee shall be reported by the consignee or consignor to agent of carrier immediately upon discovery, and in any event within 15 days after receipt and container held for inspection by carrier, with a statement of facts or circumstances evidencing loss prior to delivery by carrier. Inspection by carrier shall be made when practicable, and in any event within 48 hours, and shall include examination of package and contents for evidence of abstraction of the missing goods, checking contents with invoice and weighing for comparison with shipping weight; also investigation of cartman's record of handling shipment. Report of inspection shall be made in duplicate on standard form and signed by carrier's agent and consignee, one copy thereof to be retained by consignee and attached to claim for loss, if made. In case no inspection is made by carrier's agent, consignee's inspection shall be accepted as carrier's inspection. If investigation develops that the loss occurred with carriers, the 15 days' clause shall not be invoked. (Note.—See Rule 7.)

**Rule 3.**—Shortage from a package delivered consignee without exception, when based only upon the consignee's failure to find the entire invoice quantity in package, or when package remains in possession of consignee more than 15 days before the goods are unpacked and shortage discovered, shall not be regarded as a responsibility of the carrier unless investigation develops that loss occurred with carrier. When package remains in possession of cartman over night and not in a warehouse, carrier shall require proof that loss did not occur with cartman.

**Rule 4.**—When a package bears evidence of damage while in possession of carrier, a joint examination of contents by carrier and consignee shall be made before delivery or immediately upon receipt by consignee, and claim for damage so discovered shall be promptly adjusted upon its merits.



**Rule 5.**—Damage to contents of package discovered after delivery of shipment to consignee shall be reported to agent of carrier immediately upon discovery, or in any event within 15 days after receipt, with a statement of facts or circumstances evidencing damage prior to delivery by carrier, unless investigation develops that the damage occurred with carriers, then the 15-day clause shall not be invoked. Inspection shall be made by carriers when practicable and in any event within 48 hours after notice. In case no inspection is made by carrier's agent, consignee's inspection shall be accepted as carrier's inspection. Report of inspection shall be made in duplicate on standard form and signed by carrier's agent and consignee, one copy thereof to be retained by consignee and attached to claim for damage, if made. (Note.—See Rule 7.)

**Rule 6.**—Shortage or damage discovered by consignee at time of receiving freight in any quantity from car, warehouse or other premises of carrier shall be reported to agent of carrier before removal of entire shipment, in order that the cause and extent of loss or damage may, if possible, be definitely determined and proper record made thereof. Unloading of freight should not be retarded or discontinued awaiting inspection.

**Rule 7.**—Notice of loss or damage may be given carrier's agent by telephone or in person and in either event shall be confirmed by mail.

In case of loss or damage as provided for in Rules 2 and 5, and inspection is not made by carrier's representative, detail of findings of inspection by consignee shall be furnished carrier's agent immediately upon completion of inspection.

**Rule 8.**—Failure of consignee to comply with the foregoing regulations shall be regarded as indicating complete delivery of freight by carrier in good order.

**Rule 9.**—Where packages which indicate loss of or damage to contents are recovered by the carrier, proper record of this exception shall be noted on the way-bill and station records and shall be available to consignee.

### **When to File Claim**

Claims against railroads for damage to goods in transit or loss of or damage to goods in transit should be filed as soon as the amount to be claimed and the documents necessary to the support of the claim can be ascertained and

assembled, and if the preparation and presentation of a claim is to be delayed for any reason whatever, notice of the intent to present the claim should be immediately filed with carrier, setting forth the facts upon which the claim is based and giving complete reference to the shipment involved (see Section 2-[b] of the terms and conditions printed on the reverse side of the uniform bill of lading).

The original bill of lading and the original paid freight bill and a copy of the shipper's invoice are always required in support of loss or damage claims. If the claim is made to cover expense of repairs to damaged goods an itemized bill of the nature and cost of the repairs should accompany the claim. If the claim is made to cover concealed loss or damage all the facts and a complete report of the discovery and the inspection of the damage by the carrier's agent should accompany the claim. Claimants should always keep copies of important documents submitted in support of their claims, in order that they may be able to duplicate the claim if the original is lost by the carriers as frequently happens. When original bills of lading, freight bills or invoices cannot be produced their absence should be fully explained and in lieu thereof indemnity agreements or bonds should be furnished if required by the carrier.

### **Standard Form**

Standard forms to be used by shippers in presenting freight claims have been adopted as the result of many conferences between representatives of the carriers, the Interstate Commerce Commission and various shippers' organizations, and should always be used as they obtain full information to enable the shipper to properly present his claims, and they facilitate the handling and final disposition of claims by carriers. The standard forms for loss and damage claims are printed on pink paper and, for overcharge claims, on yellow paper. The forms can be obtained at very low cost from practically all stationers or dealers in office supplies or samples can be obtained from any railroad and additional forms printed. Many shippers have their own forms printed to carry their name and business address.

## CHAPTER XIV

## FURNITURE OVERCHARGE CLAIMS

**Preparation of  
Bills of Lading**

Careful preparation of bills of lading and shipping orders in accordance with classification and tariff descriptions of commodities, packing specifications, rates and weights, will largely prevent overcharges on furniture shipments. The collection of overcharges by carriers is frequently caused by incorrect and illegible shipping instructions. If shipments are correctly described in the bills of lading and shipping orders they usually are correctly billed and charged at destination, but otherwise they are very likely to be overcharged, or undercharged, and in either event shipper and consignee later have the inconvenience and expense of claim for refund or of balance due freight bills presented by the railroad.

**Auditing  
Freight Bills**

All freight bills should be audited for overcharges as soon as paid and claims for refund promptly filed when overcharges are discovered. It is unlawful for a railroad to exact or receive any more or any less than the published tariff rates and charges, and overcharges must be promptly refunded when brought to the carriers' attention.

Many consignees of furniture shipments are not equipped to audit their paid freight bills, and it is not always convenient to maintain a file of several hundred railroad tariffs for that purpose, but a copy of the Consolidated Freight Classification may always be obtained and kept on file, and statements of the class rates, and of the commodity rates, from specific points of origin, may always be obtained from the carriers in response to written requests, so that it really is possible for every consignee of furniture shipments to check his freight bills against the classification and statements of rates obtained from the carriers to an extent that will very largely protect him against overcharges. Also, in the larger cities and towns, usually there are traffic departments of commercial organizations or freight auditing bureaus fully equipped and competent to do such work.

## Claims for Overcharge

Claims for overcharge must be supported by original bills of lading; original paid freight bills; original invoices or certified copies (for claims based on mis-description of goods), and affidavits or certificates of weight if claims are based on overcharge in weight.

Claims for refund of overcharges should be presented as soon as possible after the shipments reach destination and should be filed with the agent of the delivering carrier.

## Notice of Damage by Carrier

The duty of the carrier in event of furniture being stolen or being destroyed in transit, by fire, flood, wreck, or otherwise, is to immediately notify either shipper or consignee. Upon receipt of such notice claim should be filed and if it later develops that there is a salvage the claim may be amended accordingly.

Claims may be filed with either the delivering carrier or the originating carrier that accepted the goods from the shipper and issued the bill of lading.

# CHAPTER XV

## TRACING DELAYED SHIPMENTS

It is the duty of carriers to transport a shipment to its destination within a reasonable time, and they should be given an opportunity to perform this service before a tracer is instituted. The tracing privilege is accorded by the carriers voluntarily, and it should not be abused by requesting them to start a tracer on a shipment before the time required for its transportation has elapsed, or until the consignee has given notice of its non-receipt.

If a shipment is correctly billed and properly marked, and is securely packed, that should expedite its movement. When requesting tracers, complete information should be given to the carriers. Requests for tracers should be filed with the agent at point of shipment.

## Begin at Point of Origin

The most effective tracing can best be done from point of origin whether it is a carload or a less-than-carload

shipment. If it is a less-than-carload shipment the railroad agent at the origin point can show the number and initial of the car in which it started and at what junction point it would first be transferred. The agent at that first transfer point can then show his forwarding, and so on until the goods are located or proved to have been lost.

### **Tracing Carload Shipment**

Carload shipments are traced by car number and initial, and by their train movements. Many railroads maintain records that enable them to show the passing record of both carload and less-than-carload shipments at all important junction and transfer points. Those records are always available to the representatives who solicit routing orders and their interest and co-operation may be very helpful in the tracing of delayed shipments.

When all other means fail to locate a car, an inquiry telegraphed to the Car Accountant or Car Service Agent of the railroad to which the car belongs usually will discover the last location of the car according to his records, and that information very often makes it possible to expedite delivery.

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## CHAPTER XVI

### RATE TERRITORIES

#### **New England Freight Association Territory**

The New England Freight Association Territory comprises all points in the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut; also points in the State of New York, east of the Hudson River, located on the Boston & Albany R. R., Boston & Maine R. R. and New York, New Haven & Hartford R. R., except New Rochelle, N. Y., and points on the New York Division of the N. Y. N. H. & H. R. R., west thereof.

#### **Trunk Line Association Territory**

The Trunk Line Association Territory comprises territory as follows:

**Eastern boundary**—New York State line (including Long Island) (except points in New York State embraced in New England Freight Association Territory) and Atlantic Ocean from New York, N. Y., to Norfolk, Va.

**Northern boundary**—New York State line (International boundary) St. Lawrence River and Lake Ontario.

**Western boundary**—Niagara River through Niagara Falls to Buffalo; thence via Erie R. R., through Dayton to Salamanca, N. Y.; P. R. R. through Warren, Pa., to Foxburg, Pa.; B. & O. R. R. through Butler to Pittsburgh, Pa.; B. & O. through Washington, Pa., Wheeling and Parkersburg, W. Va., to Kenova, W. Va.

**Southern boundary**—N. & W. Ry., Kenova, W. Va., and east through Roanoke, Lynchburg and Petersburg to Norfolk, Va., Inc.

### Central Freight Association Territory

The Central Freight Association Territory comprises territory as follows:

**Eastern boundary**—Buffalo, N. Y., to Salamanca, N. Y., via Erie R. R. through Dayton; Salamanca, N. Y., via the P. R. R. through Corydon, Pa., Kinzua, Pa., Warren, Pa., Irvineton, Pa., Tionesta, Pa., and Oil City, Pa., to Foxburg, Pa.; Foxburg, Pa., to Point Pleasant, W. Va., via B. & O. R. R. through Butler, Pa., Pittsburgh, Pa., Washington, Pa., Wheeling, W. Va., and Parkersburg, W. Va.; Point Pleasant, W. Va., to Gauley, W. Va., via the K. & M. R. R.

**Southern boundary**—Gauley, W. Va., to Ashland, Ky., via C. & O. Ry.; Ohio River west to Mississippi River, including Louisville, Ky., and Cairo, Ill.

**Western boundary**—Mississippi River north, Cairo, Ill., to East Burlington, Ill., including St. Louis, Mo.; East Burlington, Ill., to Peoria, Ill., via T. P. & W. Ry.; Peoria, Ill., via Streator and Joliet, Ill., to Chicago, Ill.; Chicago, Ill., via west bank Lake Michigan to Kewaunee, Wis., including Marinette, Wis., and Manistique, Mich.

**Northern boundary**—Straits of Mackinac; South from Straits of Mackinac to Port Huron, Mich., via west

bank Lake Huron; Port Huron, Mich., via G. T. Ry., through Sarnia, Ont., Lucan, Ont., Stratford, Ont., Kitchener, Ont., Guelph, Ont., Georgetown, Ont., and Brampton, Ont., to Toronto, Ont.; West bank of Lake Ontario from Toronto to Niagara-on-the-Lake and the Niagara River to Buffalo.

### **Western Trunk Line Committee Territory**

The Western Trunk Line Committee Territory at the present time has no definite boundaries, but, generally speaking, it comprises territory west from Lake Michigan, and the State line of Illinois and Indiana, including all the States of Illinois, Wisconsin, Northern Peninsular of Michigan, Missouri, Iowa, Minnesota, Kansas and Nebraska, Colorado and Utah and portions of Wyoming, North and South Dakotas.

### **Trans-Continental Freight Bureau Territory**

The Trans-Continental Freight Bureau Territory comprises territory as follows:

**Northern boundary**—International boundary line east from the Pacific Ocean to the Montana-North Dakota State line.

**Eastern boundary**—North Dakota-Montana State line, thence Montana-Wyoming State line, thence via a direct line to the Idaho-Oregon State line, thence the Oregon-Idaho State line, thence the Idaho-Nevada State line, thence via a line drawn just West of Ogden and Salt Lake City, Utah, Albuquerque and Deming, N. Mex., to the New Mexico-Mexico boundary line.

**Southern boundary**—Southern boundary line of New Mexico, Arizona and California.

**Western boundary**—Pacific Ocean.

### **Southwestern Freight Bureau Territory**

The Southwestern Freight Bureau Territory covers interstate freight traffic between interstate points and points in the States of Oklahoma, Arkansas, Texas and Louisiana (west of the Mississippi River), and Mexico; also traffic between St. Louis, Chicago and Milwaukee rate points and

**Southeastern Missouri.** Does not include traffic between the States of Oklahoma, Arkansas, Texas and Louisiana, on the one hand, and the States of Arizona and New Mexico, on the other. Traffic from the Atlantic seaboard territory via Gulf ports to Texas points is not included within the Southwestern Freight Bureau Territory, nor is Trans-Continental traffic included therein.

### **Southwestern Territory**

The Southwestern Territory comprises the territory directly east of the Southeastern Mississippi Valley Territory to the Atlantic Ocean, and south of the Potomac River from its delta to the Virginia-West Virginia State line, and a line drawn from the Virginia-West Virginia State line to Middlesboro, Ky., through Bristol, Tenn.

### **Associated Railways of Virginia and the Carolinas Territory**

The Associated Railways of Virginia and the Carolinas Territory comprises territory as follows:

South of a line extending west from Portsmouth, Va., to Point Rock, N. C., through Pinners Point, Va., Richmond, Va., Lynchburg, Va., and Roanoke, Va.

East of a line extending from Point Rock, N. C., to Atlanta, Ga., through Murphy, N. C.

North of a line extending east from Atlanta, Ga., to Augusta, Ga., via Georgia R. R., thence to Charleston, S. C., via Southern R. R. to the Atlantic Ocean; also includes the line of the A. C. L. R. R., from Charleston, S. C., to Savannah, Ga.

### **Southeastern Mississippi Valley Territory**

The Southeastern Mississippi Valley Territory comprises territory as follows:

**Northern boundary**—Ohio River from Cincinnati, O., to Cairo, Ill.

**Western boundary**—Mississippi River, south from Cairo, Ill., including Helena, Ark., and Vidalia, La.

**Southern boundary**—Gulf of Mexico.

**Eastern boundary**—A line extending from Covington, Ky., to Pensacola, Fla., as follows: Via L. & N. to Middlesboro, Ky., through Winchester, Ky.; thence through Jellico, Tenn., to Harriman and



Harriman Junction, Tenn.; thence via C. N. O. & T. P. to Chattanooga, Tenn.; thence to Attalla and Birmingham, Ala., via the A. G. S. Ry.; thence to Pensacola, Fla., via the L. & N. through Calera and Montgomery, Ala.

## CHAPTER XVII

### GLOSSARY OF TERMS AND ABBREVIATIONS USED IN CONNECTION WITH FREIGHT CLASSIFICATION, FREIGHT RATES, AND OTHER MATTERS OF FREIGHT TRAFFIC AND TRANSPORTATION

#### Preface

This glossary is intended as a guide to the understanding and proper application of words, phrases and abbreviations that partly compose the terminology of freight traffic and transportation matters as they relate to the furniture industry.

These words, phrases and abbreviations are used in freight classifications and rate schedules or tariffs; they constantly appear in correspondence and conversation with representatives of railroads; they are used in reports of cases decided by commissions and courts; they are found in articles and press items about shipping affairs; and their real meaning and proper application are vitally important.

#### A

**Act to Regulate Commerce**—An act passed by Congress, February 4th, 1887, regulating carriers engaged in handling interstate traffic, and now called "Interstate Commerce Act."

**Agreed Valuation**—The value of an article or shipment mutually agreed upon between shipper and carrier, that certain charges may be determined and representing the maximum amount to be recovered in case of loss or damage.

**Agreed Weight**—A weight mutually decided upon by shipper and carrier for commodities transported in a particular container or package or in a certain manner.

**Arrival Notice**—A notice sent consignee advising of the arrival of a shipment.

#### ABBREVIATIONS

**A.F.A.**—Auditor of Freight Accounts, Assistant Freight Agent.

- A.F.C.**—Auditor of Freight Claims.  
**A.F.O.C.**—Auditor Freight Overcharge Claims.  
**A.F.R.**—Auditor of Freight Receipts.  
**A.F.T.**—Auditor of Freight Traffic.  
**A.F.T.M.**—Assistant Freight Traffic Manager.  
**A.G.F.A.**—Assistant General Freight Agent.  
**A.N.**—Arrival Notice.  
**A.O.C.**—Auditor of Overcharge Claims.  
**A.R.A.**—American Railway Association.  
**Arb.**—Arbitrary.

B

- Bad Order Freight**—A term applied to freight, the condition of which indicates that some of it may have been lost or damaged.
- Billing and Guide Book**—A schedule containing instructions for way-billing and routing shipments; also bases of rates to certain points.
- Bills of Lading Act**—An act of Congress with regard to the terms and conditions incorporated in bills of lading.
- Blind Check**—The tallying or checking of freight without access to records disclosing kind and amount of freight contained in the shipment.
- Bulky**—A term applied to freight taking up considerable space in comparison to its weight.
- Bunching (Cars)**—Cars placed for loading or unloading in excess of orders or track and unloading facilities.
- Buyer's Right of Routing**—When the seller does not pay freight charges, buyer has option of routing. When seller is to prepay freight the buyer's right to name the carrier must be made a part of the contract of sale; such right to be exercised before actual shipment of goods. If seller disobeys buyer's orders as to carrier or route, he incurs all risks of transportation.

ABBREVIATIONS

- B.L.**—Bill of Lading.  
**B.O.**—Bad Order.  
**Carrier**—One who transports goods for another. Such as "Common Carrier", "Delivering", "Initial", "Intermediate", "Issuing", "Participating" and "Private".

**Car Seals**—A protection for the contents of enclosed cars, doors and other openings. It consists of a piece of wire or tin with a lead disk through one of which the seal is inserted. The lead disk is compressed with an iron sealing device, which leaves an impression of the figure denoting the station or place where the seal was applied.

**Car Service**—A term applicable to the general services of railroads with respect to car supply and their handling, such as demurrage, interchange and number of train miles.

**Classification**—As applied to the thousands of articles tendered the carriers for shipment, "classification" is the grouping of articles that have similar transportation characteristics for the purpose of simplification. Weight, risk in handling, bulk, value of article, competition and cost of handling are among other factors considered in determining the class to which any article is assigned.

**Classification Committee**—A body of men representing the carriers and whose duties are to establish classification provisions and ratings for their respective territories. In existence at this time are three major committees, the Official, the Western and the Southern. (See "Consolidated Classification".)

**Class Rate**—An article given a special or commodity rate and not covered by an exception, comes under the class basis. Such rates are absolute in their nature, and apply to the numbered or lettered groups or classes of articles that are contained in the territorial rating column in the classification schedule.

**Commodity**—In a general sense, an article of commerce. In transportation, an article, goods or merchandise afforded special rates and service. (See "Commodity Rate".)

**Commodity Rate**—A special rate on a special article, removing the application of the class basis, except where the tariff specifies the alternative use of class and commodity rates.

Commodity rates are in effect primarily to encourage the movement of bulky and less expensive articles, long distances or to markets where they may be sold at a profit. Coal, cement, lumber, etc., are given these special rates, moving in most cases in carload

lots. Commodity rates apply to certain mixed shipments and are the lawful rates even though certain parts of the mixtures are covered by the class rates when shipped separately.

**Commodity Tariff**—A schedule containing only commodity rates.

**Common Carrier**—One who, as a business, undertakes for hire to transport from place to place goods, passengers, messages of all who choose to employ him. The term is used with varying meanings in federal, state and municipal regulatory acts.

**Complaint (I.C.C.)**—A complaint filed with the Interstate Commerce Commission for investigation and adjudication under procedure provided by the rules of that body and designated as "Formal" or "Informal".

**Concealed Loss or Damage**—Loss or damage that cannot be determined until the package is opened; externally in good order.

**Consignee**—One to whom shipment is billed or forwarded, and known as a "receiver of freight".

**Consignee Marks**—Identification marks used generally on export packages, and consisting of a triangle, square, cross, circle or diamond, with certain letters or numbers.

**Consignment**—In shipping parlance, a quantity of goods to be transported; technically, the act of consigning, as charge for safe-keeping, transportation and management, goods, property and other commodities.

**Consignor**—One who ships goods to another, and also known as the "Shipper".

**Consolidated Classification**—The schedule which has superseded the individual classifications formerly issued by committees in the Official, Southern and Western territories. The Consolidated Classification represents a decided step towards unifying minimum carload weights, number of classes, assignment of articles to classes, as well as descriptions of articles, and rules and regulations governing their preparation and handling. (See "Classification".)

**Cooperage**—The charge for putting hoops on casks or barrels, or the reconditioning of any packages to make them suitable for safe transportation. One engaged in this work is called a "cooper".

ABBREVIATIONS

- C.A.—Commercial Agent, Claim Agent.  
 C.F.A.—Central Freight Association.  
 C.L.—Carload.  
 C.R.—Carrier's Risk, Class (or Commodity) Rate.

D

**Damage Claim (Freight)**—A demand upon the carrier for reimbursement for physical injury to shipment or because shipment was not delivered within a reasonable time.

**Declared Valuation**—The valuation placed on a shipment when it is delivered to the carrier.

**Declared Valuation (Rate)**—A transportation charge (rate) based upon a declared valuation.

**Delivering Carrier**—The transportation company by which a shipment is delivered to the consignee.

**Delivery**—The transfer of possession, as applied to shipping; it occurs when lading is surrendered and title to goods passes to the receiver or consignee.

**Demurrage**—In domestic shipping, a penalty charged shippers or receivers of freight by the carriers, usually at a stated sum per car per day for detention of the car beyond the free time provided for loading or unloading.

Under the straight plan, a definite free time in which to load or unload is allowed; a certain sum per day (increasing according to time), being assessed for detention of cars beyond the free time, no credit being made for equipment released before free time has expired.

Under the average agreement plan the receiver is credited if he unloads within free time, to offset penalties that may accrue because of detention beyond free time in unloading other cars; charges usually being assessed by the carriers at the end of the month, for any outstanding debits.

**Description of Articles**—Applicable to that part of the classification providing for the billing of goods (shipments) according to whether finished or in the rough, S.U. or K.D., etc. (See "Classification".)

**Destination**—The point to which a shipment is forwarded or consigned.

**Differential (Rate)**—The amount added to or subtracted from a through (basing) rate to make a rate.

For Example: The rate from Chicago to Philadelphia is made up on the basis rate (Chicago to New York), less the differential basis (or rate) to Philadelphia.

**Distance Rate**—The rate constructed on a mileage basis; and usually local or joint. The rule observed in constructing distance rates is that the per ton mile factor decreases and the aggregate charge increases, according to the length of the haul. These rates, unlike those applying from point to point, are applicable only to specified distances, such as "5 miles, 10 miles", etc.

**Dunnage**—Materials used for stowing and protecting cargo, or preservations which protect articles being transported, such as props, braces, and false flooring.

# ABBREVIATIONS

**D.F.A.**—Division Freight Agent, or District Freight Agent.

## E

**Effective Date**—As applied to rulings, orders, tariffs and other schedules, the date the provisions become operative.

**Estimated Tare**—That amount which is estimated as being the weight of the container.

**Estimated Weight**—It is the general practice of the carriers to base charges on the gross or combined weights of the articles and containers. However, the classification and tariff schedules provide estimated weights for goods shipped in certain packages, or in a certain manner.

**Ex (or X)**—"Out of." Used in connection with rolling stock, means that contents of car designated "Ex (or X)" car —, had previously been transferred from that car to the one now holding the goods.

**Exception (to Classification)**—An exception is a modification of the classification published individually or by an agent, in tariff form and known as an "Exception Sheet". It governs the movement of a certain article between specific points or within a definite area, and only removes the application of the classification on

the particular article and between the points or in the certain area so designated.

**Expense Bill**—(See "Freight Bill".)

**Express Classification**—A schedule containing the classes to which articles accepted for transportation are assigned. Compared with freight classification of the rail carriers, the express classification is a list of exceptions to three standard classes, first, second and third, and includes a "Money" section, which provides rules, regulations and rates for the transportation or transfer of coin, currency, bullion and securities.

## ABBREVIATIONS

**E.A.O.N.**—Except as otherwise noted.

**Emb.**—Embargo.

**Est.**—Estimated.

## F

**False Billing**—Specifying incorrect weights, giving erroneous descriptions, or employing any method in billing freight for the purpose of paying other than lawful rate of transportation.

**Ferry Car**—(See "Trap Car", "Station Order Car".)

**Free Astray**—This term applies to a shipment that has miscarried or been unloaded at the wrong station and which is billed and forwarded by the carrier to the proper destination, free of charges. This is done by means of a document known as an "Astray Freight Way-bill".

**F.O.B. (Free on Board)**—A term employed in domestic trade to mean delivery of goods with charges paid on board cars at point of manufacture.

**F.O.B. Factory**—This might mean that cartage charges to railroad are to be paid by the buyer, or that goods are to be delivered to the railroad depot or loaded in cars at factory siding. The term "f.o.b. factory", or "f.o.b. mill", is used often with the same meaning as "f.o.b. cars works".

**F.O.B. Railroad**—Indicates delivery on board cars at point of manufacture, or, if so amplified, free on board at a certain railroad terminal.

**Freight Bill**—A bill rendered by the carrier, giving a description of the freight, the weight and the amount of charges. If charges have been paid, a "Prepay Freight

Bill" is given the shipper, showing name of consignee and destination; if not prepaid, consignee is given a "Destination Freight Bill", showing name of shipper and point of origin.

**Freight Rate**—A charge made for transportation of freight; published in tariff form by the carriers, and filed with the Interstate Commerce Commission (30-day statutory notice, unless special permission is granted otherwise), before becoming effective.

**Freight Receipt**—A receipted freight or expense bill.

**Freight Release**—The delivery of goods in consequence of freight having been paid.

**Freight Tariff**—The carrier's schedule of charges or price list, expressed in dollars and cents per 100 pounds, or per ton, etc., for the transportation and handling of freight between and at such points as are named therein, under such conditions as are in conformity with the bill of lading or the law and governed by the classification specified on title page.

#### ABBREVIATIONS

**F.A.**—Freight Agent; Freight Auditor; Freight Association.

**F./A.**—Free Astray.

**F.B.**—Freight Bill.

**F.C.A.**—Freight Claim Agent, (or Association).

**F.C.Aud.**—Freight Claim Auditor.

**F.O.B.**—Free on board.

**F.O.R.**—Free on Rail.

**F.T.M.**—Freight Traffic Manager.

#### G

**Gross Weight**—The weight of an article plus the weight of the container and packing materials. If applied to a carload, it signifies the weight of the car and its entire contents. (See "Net Weight".)

**Group (Rate)**—A number of points considered together for ratemaking purposes.

#### ABBREVIATIONS

**G.A.**—General Agent.

**G.C.A.**—General Claim Agent.

**G.F.A.**—General Freight Agent.



**G.F.D.**—General Freight Department.

**G.F.O.**—General Freight Office.

**Gr. Wt.**—Gross Weight.

**G.T.**—Gross Ton.

**Gtd.**—Guaranteed.

**G.T.M.**—General Traffic Manager.

## H

**Hold Track**—A track in a storage yard where cars are held awaiting disposition orders by consignees or owners.

## I

**I.C.C. Number (No.)**—A number which the Interstate Commerce Commission assigns and requires to be placed on tariffs and other transportation schedules filed with that body, for purpose of identification.

**In Apparent Good Order**—A phrase applied to a shipment not showing any indication of loss or damage and in good condition so far as external appearance is concerned, though a subsequent examination of contents on the container may reveal breakage or shortage. (See "Concealed Loss".)

**Industrial Track**—A track serving one or more industries.

**Initial Carrier**—The carrier to whom a shipment is delivered by the shipper; more definitely applied when destination is at a point beyond the line of the carrier to which shipment is originally tendered.

**Initial Point**—The place at which the shipment originates.

**Inspection Bureau**—An organization maintained by the carriers for the purpose of seeing that goods tendered for shipment are properly packed and meet the requirements and rules of the classification or schedule governing.

**Interstate Commerce Act**—(See "Act to Regulate Commerce".)

**Interstate Commerce Commission**—A Governmental body consisting of 11 members and having control over the actions of carriers; empowered by Congress in the Act to Regulate Commerce (1887), and Supplemental Acts.

**"In the Rough"**—A qualifying term applicable to an article not in state of complete manufacture; also known as "Unfinished Product".

**In Transit**—(Latin, "in transitu"), on the way. In course of transmission.

### ABBREVIATIONS

**I.C.C.**—Interstate Commerce Commission.

### J

**Joint Rate**—A joint rate is one agreed upon by two or more carriers and applies between a point on the line of one and a point on the line of another. Such a rate may include one or more intermediate lines of railroad in its route.

**Joint Tariff**—A schedule containing joint rates.

### K

**Knocked Down**—An expression signifying that an article is partially or entirely taken apart and not being shipped in a "set up" state or ready for use.

**Known Loss or Damage**—A loss or damage that is discovered before or at the time of delivery of the freight. (See "Concealed Loss".)

### ABBREVIATIONS

**K.D.**—Knocked down.

**K.D.C.L.**—Knocked down Carload.

**K.D.L.C.L.**—Knocked down Less-than-Carload.

### L

**Loading and Unloading**—In domestic shipping, a service usually performed by the consignor and consignee in carload lots and by the carrier in less-than-carload quantities.

**Loading Seals**—Seals applied to the doors of cars when cars are loaded, i.e., when the freight is checked from the freight house platform to the cars.

### ABBREVIATIONS

**L.&D.**—Loss and Damage.

**L.C.L.**—Less-than-Carload.

### M

**Marked Capacity**—The stenciled or marked weight on a car denoting its carrying capacity.

**Mileage Rates**—(See "Distance Rates".)

**Minimum Carload Weight**—The minimum weight, as pro-

vided for in a tariff, classification, and exception thereto, shows the least amount of an article that will be accepted for shipment, in order that it may be classed as a carload.

**Minimum Charge**—A fixed charge, less than which no shipment will be accepted for transportation by the carrier.

**Mullen Test**—A test applied to fiberboard and similar wood substitutes by a machine to determine their strength.

## ABBREVIATIONS

**Max.**—Maximum.

**M.C.**—Marked Capacity.

**M.C.B.R.**—Master Car Builders' Rules.

**Min. Wt.**—Minimum Weight.

## N

**"Nested"**—Packed one within the other.

**"Nested Solid"**—Articles nested so that the bottom of one rests on the bottom of the one lower.

**Net Weight**—The weight of an article without container, bag or covering, or, in case of carload, the weight of the entire contents of the car.

**Non-Agency Station**—A station at which a carrier has no agent.

## ABBREVIATIONS

**N.O.I.B.N.**—Not otherwise indexed by name.

**N.O.S.**—Not otherwise specified.

**Nstd.**—Nested.

**Ntfy.**—Notify.

## O

**Official Railway Guide**—A publication containing train time tables (passenger), distances between stations and names of officials and their addresses.

**Open and Prepay Stations**—An official list of freight stations in the United States with information as to whether goods may be consigned collect or whether charges must be prepaid.

**Open Station**—A station where an agent is located and to which freight may be shipped charges collect.

**"Order-Notify"**—(See "Bill of Lading".)

**Originating Carrier**—(See "Initial Carrier".)

**Over Freight**—Packages or goods minus identifying marks and separated from way bill.

**Over, Short and Damage Report**—A report submitted by a freight agent showing discrepancies in billing received and freight on hand. For example: if he has freight not covered by billing, he is "over;" if less freight than the amount billed, he is "short," and if freight is received in bad condition, he reports "damage."

**Owner's Risk**—Indicates that shipper relieves carrier from part of transportation risk.

### ABBREVIATIONS

**O.C.**—Official Classification.

**O/C.**—Overcharge.

**O/N.**—Order notify.

**O.R.**—Owner's Risk.

**O.R.B.**—Owner's risk of breakage.

**O.R.C.**—Owner's risk of chafing.

**O.S.&D.**—Over, short and damage.

### P

**Package Car**—A car containing less-than-carload shipments destined for one or more distant points.

**Package Freight**—Goods shipped in less-than-carload quantities.

**Point of Origin**—The place (or station) where a shipment is received by the carrier from the shipper.

**Posting (Tariffs)**—The filing of tariffs and other schedules for public use as required by law at local and general offices of the carrier and to which the carrier is a party.

**Prepay Station**—A station (generally non-agency) to which freight charges must be prepaid.

**Publishing Agent**—A person authorized by carriers to publish tariffs containing rates, rules and regulations for their account under power of attorney.

### ABBREVIATIONS

**P.P.**—Prepay, Prepaid.

**Pro.**—Progressive.

**Prop.**—Proportional.

**P.S.C.**—Public Service Commission.

**P.U.C.**—Public Utilities Commission.

## R

**Rate**—As applied to transportation or the movement and handling of goods and persons, the cost of, or charge for service to be, or which has been rendered. (Rates are known as "Advanced", "Alternative", "Any-Quantity", "Arbitrary", "Back-Haul", "Basing", "Block", "Carload", "Class", "Combination", "Commodity", "Differential", "Distance [or Mileage]", "Flat Car", "Group or Blanket", "Intermediate", "Interstate", "Intrastate", "Joint", "Less-than-Carload", "Local", "Maximum", "Minimum", "Mixed Carload", "Paper", "Passenger", "Proportional", "Reasonable", "Reduced", "Released", "Reshipping", "Returned Shipment", "Seasonable", "Standard", "Through", and "Transit".)

**Rate Basis**—The basis or formula of factors used in constructing a rate or service of rates.

**Rate Check**—A freight bill audit for the purpose of discovering errors and overcharges. (Extensions and misapplication of rates.)

**Rate Construction**—The science, method or factors employed in the making of rates.

**Rate Quotation**—A rate furnished by a carrier.

**Rate Scale**—A table of rates graduated according to mileage or distance.

**Rate Schedule**—(See "Tariff".)

**Rate Structure**—Is that foundation upon which a series of related rates are based. (See "Rate Basis".)

**Released Rate**—A released rate is one based upon the value of an article (or articles) to which it applies, and directly conditioned upon the assumption of part or all of the risk of transportation by the consignor.

**Released Valuation**—A condition whereby the carrier's liability is limited.

**Reparation**—Redress in the form of adjustment or reimbursement on account of an unjust or unreasonable charge.

## ABBREVIATIONS

**Rel.**—Released.

**R.E.R.**—Railway Equipment Register.

**R.25**—Rule 25 of Consolidated Classification.

**R.26**—Rule 26 of Consolidated Classification.

**R.28**—Rule 28 of Consolidated Classification.

**R.34**—Rule 34 of Consolidated Classification.

S

**Seal Record**—A record of the number, condition and marks of identification of seals made at various times and places in connection with movement of car between points of origin and destination.

**Set-up**—A term signifying that an article is put together in its complete state. (See "Knocked Down".)

**Shipper's Load and Count**—A phrase appearing on the bill of lading and denoting that the contents of the car were loaded and counted by the shipper and not checked or verified by the carrier. Sometimes designated "Shipper's Load and Tally".

**Shipper's Order Notify**—(See "Bill of Lading".)

**Shipping Day**—A term used by carriers to denote the time freight will be accepted for certain points.

**Shipping Instructions**—In general usage, the instructions given the transportation company by the shipper relative to the movement of his goods.

**Special Reparation Docket**—That part of the record of the Interstate Commerce Commission whereby application of the carriers for permission to refund unlawfully collected transportation charges are passed upon.

**Spotting**—The act of placing car to be loaded or unloaded.

**Statute of Limitations**—A statute law limiting the time in which claims or suits may be instituted.

**Statutory Notice**—A period of time required by law for giving notice of changes to be made in tariffs, rates, rules and regulations—usually 30 days unless otherwise permitted by authority from the Interstate Commerce Commission.

**Supplement**—A publication containing additions, changes, and/or cancellations of a classification, tariff, or other schedule, but affecting only the item or items specified therein. Unless period of notice is modified by the Interstate Commerce Commission, a supplement, like a tariff, must be filed 30 days before it becomes effective.

**Suspension**—The temporary withholding of the privilege to continue. For example: The Interstate Commerce Commission might suspend, until after a hearing to determine reasonableness, the effective date of a proposed tariff or rate, on representation of shippers that same would be unjust and discriminatory. Such an action of the Commission is called a "Suspension Order".

### ABBREVIATIONS

**S.C.&S.**—Strapped, Corded and Sealed.

**S.L.&C.**—Shipper's Load and Count.

**S.L.&T.**—Shipper's Load and Tally.

**Sou. Class'n**—Southern Classification.

**S.U.**—Set-up.

**S.U.C.L.**—Set-up, Carload.

**S.U.L.C.L.**—Set-up, Less-than-Carload.

### T

**Tare (Weight)**—An allowance in weight or quantity on account of cask, bag, covering, or foreign matter. "Actual tare" is determined when each cask, bag, etc., is weighed; "average tare" when one is weighed as a sample; and "estimated tare", when a fixed percentage is allowed.

**Tariff (Freight)**—A schedule containing matter relative to transportation movements, rates, rules and regulations. (Tariffs are known as "Agency", "Alternative", "Basing", "Class", "Combination", "Commodity", "Distance", "Individual", "Joint", "Local", "Proportional", "Seasonable", "Sectional", "Special Service" and "Switching".)

**Tariff Authority**—The tariff or other schedule referred to in support of statement and containing rate or regulation applicable to specific traffic. It is usually sufficient to cite the number under which it is filed with the Interstate Commerce Commission or state regulating body.

**Tariff Circulars (I.C.C.)**—Circulars issued by the Interstate Commerce Commission containing rules and regulations to be observed by the carriers in the publication, construction and filing of tariffs and other schedules. The present circular covering freight tariffs is Series No. 18; for express, Series No. 19.

**Tariff File**—Copies of tariffs, classifications, supplements, reissues and other schedules, maintained for the purpose of ascertaining, quoting and checking rates and determining the rules and regulations governing traffic.

**Tariff Index**—A list, kept by a carrier, of the tariffs it issues or is a party to, showing I.C.C. and G.F.O. numbers, together with points from, to and between which the rates contained therein apply.

**Terminal Carrier**—A carrier making delivery of a shipment to consignee at destination.

**Through Rate**—Two or more separately established rates, added together to make a total charge for a through haul, and operating as a unit for a single transportation service and on a through bill of lading. (See "Joint Rate".)

**Tolerance**—A term applied to the amount allowed without correction for the difference in weights due to variation in scales or weighing and the billed weight. The amount allowed, or "tolerance," usually a per cent of the weight, varies according to the commodity.

**Tracer**—A request made of a carrier to locate a shipment for the purpose of expediting its movement and delivery; is that means of following up, with a view towards ultimately locating and stimulating action on a previously filed claim, communication, order or request.

**Traffic**—Used with respect to commercial transportation, is a term expressive of the property and persons transported by carriers. (See "Density of Traffic", "Transportation".)

**Transfers**—A term used to describe points where shipments are rehandled before reaching final destination. "Transferring" consists of the movement of a shipment or shipments from one car to another or from one depot to another or in the case of a terminal or junction transfer, from one railroad to another.

**Transportation Act, 1920**—An act of Congress, approved February 28th, 1920, providing for the termination of federal control at 12.1 a. m., March 1, 1920, and amending the Interstate Commerce Act.

**Trap Car**—A term applied to a car, also known as a "Ferry Car" which is placed on a shipper's siding and in which is loaded several less-than-carload ship-



ments destined to different points. Shipments are distributed at carrier's terminal at point of origin into other cars for forwarding to their respective destinations. (See "Station Order Car".)

## U

**Undercharge**—A charge which is less than the proper amount.

**Uniform Bill of Lading**—(See "Bill of Lading".)

**Uniform Classification**—(See "Consolidated Classification".)

## V

**Visible Capacity**—That which is known or is apparent as to the carrying capacity of a car, its type and the nature of the commodity to be loaded and shipped, considered.

## W

**Weight Agreement**—Where shippers desire to avail themselves of the use of estimated weights not already incorporated in classifications and other traffic schedules, they enter into a form of agreement with the carriers. (See "Estimated Weights".)

**Weights and Weighing**—Under the law, a shipper has a right to have the correct weight of his shipments ascertained so that the charges computed may be correct. Investigations proved that the majority of scales used by carriers were not standard and that erroneous weights were applied in many cases. In consequence, the Interstate Commerce Commission caused the carriers to standardize their scales and regularly inspect them.

At all points where less-than-carload freight is accepted for shipment, the carriers maintain scales. Track scales are also provided for the weighing of carload traffic. The shipper should familiarize himself with the proper methods of using both house and track scales and see to it that correct weights are obtained on his shipments, for it is the duty of the carrier to perform this service and to test scales regularly.

## ABBREVIATIONS

**W.&I.B.**—Weighing and Inspection Bureau.

**W.C.**—Western Classification.



## PART XI

# *Furniture as an Industry*

*By Francis D. Campau,*

*Counsel, Furniture Manufacturers' Association of Grand Rapids*



# *Furniture as an Industry*

## CHAPTER I

### PAST AND PRESENT

There is a considerable body of material collected and published concerning furniture in its cultural and artistic aspect, and in the museums of the world there are examples of furniture making which reveal clearly and nearly completely the progress of furniture craft, from its rudest beginnings to the highest development of the art. One might wish that the published material were a little better ordered, more workable, and that a study of it as it is, did not have so pronounced a tendency to confuse the mind; and one might also wish that the collections of the museum pieces were not so widely scattered and that individual collections had less the appearance of being the result of haphazard picking up and more the appearance of studied and intelligent collection.

But even as it is, no conscientious student can fail to trace quite definitely the basic art motifs which have been inculcated into furniture design, and to properly allocate the definite adaptations of these motifs to their time and to their peoples.

### **Industrial Beginnings**

The industrial story of furniture is not revealed to us so clearly. The story of the building of all of the ages, and of the agriculture, and of the maritime activities, and even of the weaving of the peoples who have gone before, may be read more clearly from surviving monuments and from the literature of the time, than can the story of furniture. This seems to be the rule practically until we come down to within the last half dozen centuries. There are isolated examples, it is true, of ancient furniture, but there are neither those fragments nor the literary remains from which we may reconstruct for ourselves the furniture surroundings of the ancient peoples, as we have been able to reconstruct their buildings, their ships, their travels, their agriculture and their personal appeal and equipment.

This is probably true, because in the Oriental cradle of civilization and in Mediterranean littoral, furniture, as we know it, was not a necessity to life, nor was such a mere

utility considered of sufficient importance to be dignified as a memorial.

In those times when the wealth of the world belonged to those who could levy contributions, it was in the hands of the kings, the princes and the war lords; and the memorials which they built to themselves, by the works of thousands of hands, bespoke recognition generally by dimension.

## Development of Commerce

With the development of commerce, there grew up sources of revenue which were available to a considerable number of the citizens; and the development of commerce, going hand in hand with exploration and the development of cargo ships, brought new wealth into the trading centers of the world.

The commercial success brought the inclination and the means for self-distinction, and there were many besides the princes who could, and did, avail themselves of variety and richness of foods, of sumptuousness of raiment, and homes whose beauty and costliness of structure and richness of adornment and furnishings, held before the world the success and financial sufficiency of their owners.

These were not the war lords, who might memorialize their victories, and command, by levy, the work of thousands; but they had an opportunity to vie with their fellow merchants in the splendor of their individual surroundings. This opportunity and desire found its expression in the attention paid to furniture.

## Two Types of Splendor

This attention to furniture, following the growth of the wealth by trade is noticeable throughout the history of all of the nations of the world. It has been the history of most great peoples that they have had two periods of splendor—one the period either of conquest or of rising to independence through victory; of extending their territory and their influence by their courage and hardihood or by a genius for organization. And second, a period of affluence, in which the merchants and trading class in the security afforded by the strength of the people, has extended trade and has effected a distribution of wealth. This was not, of course, confined to a bourgeois, or pure trader class, because wherever wealth has accumulated, all

values rise and the hereditary land owner and the holder of feudal privileges finds his wealth increased by the general rise in values.

So in succession we find that wealth and home adornment came about successively in Greece, in Italy, in the North of Europe, in England and in France, when military or diplomatic success had established a prestige, under which commerce could and did flourish.

### **Beginning of Furniture Industry**

However, it must be remembered that the economic and social structure of all the world, up to the beginning of the Nineteenth century, was such that even in communities of great wealth, its distribution was extremely limited. The heavy burden of maintaining an hereditary leisure class and the church made it impossible for the workers, with scarcely more implements or equipment than their hands, to gain for themselves a surplus over each day's bare necessities.

We find that practically up to the time of Elizabeth, in England, the building of furniture could hardly be recognized as an industry. The rude benches, tables and shelves which outfitted the homes of the millions of hand workers were home built. Articles of utility were without design, like the thatched roof overhead. Even in the homes of the wealthy, furniture was not used in profusion, and the handcraft of a small number of workers could supply the needs of a large community.

This very limitation of the furniture industry gave to those periods and those master makers, who are still our models, a beauty of design and excellence of workmanship. The group for whom they conceived and built, without haste and without regard to expense, were those whose pride it was, in their wealth, to be the patrons of all of the arts and of letters. It was for that group that the goldsmiths, the sculptors and the painters, the architects, the poets and the dramatists worked; and it was the most cultivated tastes of each of the periods that selected the master builders whose designs have survived for us.

### **Progress of Nineteenth Century**

With the Nineteenth century applied power came into use and shop hand work began to yield to industrial production. With the changing over from laborious work,

with his arms and hands and fingers, the industrial worker, guiding and feeding swiftly driven machines, found his production multiplied many fold. Prices of ordinary articles of commerce were reduced; the workers, money wage was increased and his actual wage, in terms of commodities available to him, completely changed his status in the economic structure. He became the creator, each day, of a surplus beyond the necessity of the day and took his place along side the merchants and traders of the centuries before, as one who might himself become a buyer. Furniture became for him an object of purchase, not something to be rudely constructed in the home; and with the coming of this new market, coupled with the introduction of power into wood work, furniture took its place as an industry.

With rare outstanding exceptions, from the beginning of the Nineteenth century until the present time, the development of furniture manufacture has been in materials, methods, distribution and volume—in terms of production, and not of the arts and of the crafts. This was inevitable, if our premise is right.

### **Increase of Furniture Buyers**

So rapid was the increase of furniture buyers, so much more rapid was their accumulation of wealth than their advancement in an understanding of artistic values, that it was inevitable that their selection would lack the finer taste of those who had selected and fostered the work of the masters of the preceding centuries. So, too, it was inevitable that the makers of furniture, under the new regime, would be industrialists, not artists and craftsmen, and that the distributors, who were the necessary contact between the maker and the buyer, would be merchants and not connoisseurs.

## **CHAPTER II**

### **STATISTICAL REPORTS ON FURNITURE**

In the year 1914 there was manufactured in the United States \$270,938,958 worth of furniture of all kinds, as it was then listed by the United States census. In the year 1921 this had increased to \$550,163,554; in 1923 it had increased to \$776,494,839, and in 1925 it had increased to \$868,145,913.

The last report of the Bureau of the Census (for the year 1925) shows \$561,705,104 of wood household furni-



# FURNITURE AS AN INDUSTRY

ture produced; 3,235 industrial establishments, occupied solely in making household furniture, and 180,895 employes so engaged.

So little considered was furniture by the Department of the Census that all household furniture was grouped in a combined classification. In 1921, at the instance of a group of furniture manufacturers in Grand Rapids, the Department of the Census undertook a new classification, so that we now find the production of furniture as based on the government's census of 1925, very nearly completely analyzed under the following classes:

## WOOD HOUSEHOLD FURNITURE BASED ON GOVERNMENT CENSUS OF 1925

Kind	United States
<b>Living room</b>	
Suites .....	\$131,031,793
Chairs and rockers.....	31,693,097
Tables .....	25,618,344
Davenport, sofa beds and day beds...	12,572,357
Cabinets .....	18,868,947
Desks .....	6,425,054
Sofas and couches.....	3,240,957
Bookcases .....	2,959,290
Piano benches and stools .....	2,498,460
Other living-room furniture .....	19,760,847
	<hr/>
	\$254,669,146
<b>Bedroom</b>	
Suites, etc. ....	\$ 86,321,535
Dressers, vanity dressers and dressing tables .....	28,594,168
Beds .....	14,436,402
Chiffoniers, chifforobes, wardrobes and chifforettes .....	14,328,926
Chairs and benches .....	6,298,121
	<hr/>
	\$149,979,152
<b>Dining room.</b>	
Suites .....	48,453,268
Chairs .....	26,332,489
Buffets, china closets and servers.....	16,453,332
Tables .....	14,281,400
Other dining-room furniture.....	682,931
	<hr/>
	\$106,203,420
<b>Kitchen</b>	
Cabinets, etc. ....	\$ 16,495,418
Chairs and stools.....	5,222,431
Tables .....	4,816,466
	<hr/>
	\$ 26,534,315
<b>Porch</b>	
	\$ 7,285,994
<b>Hall</b>	
	\$ 2,358,036
<b>Miscellaneous and not specified</b>	
	<hr/>
	\$ 14,675,041
<hr/>	
<b>Grand Total</b> .....	<b>\$561,705,104</b>

## **More and Better Buyers**

In the last two or three decades, we find distinct evidence of a reversion to the processes which we have described above, as developing a better trained selection by the buyers and a recognition of this tendency, even by those industrialists who are turning out furniture by the modern methods of mass production. Those who make up the new millions of potential buyers of furniture in this country have taken on many of the attributes of the leisure class of the previous centuries.

Cultural advantages have followed physical comforts in the homes of vast numbers of our citizens. Increased wealth of our cities has enabled them to raise, for educational purposes, sums that have made possible the building, even in villages, of high schools which afford educational opportunities equal to the opportunities afforded by the colleges half a century ago. The wealth of our states and the vast individual fortunes accumulated have put colleges and universities within the reach of the children of only average means, as average means is understood today. Generosity, coupled with the natural resources of our country and the industrial genius for developing it, has established libraries, art galleries and museums, open to the public; and the presses of our country are turning out millions of volumes and hundreds of millions of magazines and periodicals to an eager market.

## **Increasing Knowledge of Furniture**

Under such conditions there is rapidly developing, hand in hand with buying power, a cultivated taste and a true judgment of values. A general knowledge of the historical settings, in which models of craftsmanship or master artists made their appearance, has quickened interest in what we know as the furniture periods and in the work of the masters; and a conscious or unconscious study of style and line and proportion, through books or viewing of original pieces, are creating a constantly finer critical selection.

## **Co-operation of Government**

On the other hand, through the activities of state and government, through the refinements of mechanical methods and through a wider access to the cabinet woods of the

world, opportunities are increasing for the producer to meet the more exacting demands of the better trained buyer. Designers are feeling the appreciation of the public and are working steadily through the difficulty which mass production presents to the designer toward the once undreamed of end of a rapprochement between fine design and volume of output.

### **Again, the Better Home**

The distributor, in a large measure, holds the key to the situation. It is he who knows, or should know, the taste of the ultimate purchaser; it is he who is able, or should be able, to guide that purchaser, where a suggestion will turn the balance in favor of a better choice. He is the buyer, too, who knows, or should know, what the market offers.

It is well that the dealer should realize that in this day of the restless, nomadic American, it is the home furnishings, rather than the shelter, which make the home. If he realizes this, he will play his part as a good citizen of a good country by striving ever to make better American homes.



PART XII

*Furniture in Museums of the  
United States*

*Compiled by Henry L. Ward*

*Director, Kent Scientific Museum, Grand Rapids, Michigan*



# Furniture in Museums of the United States

(Compilers' note—No effort has been made, in the following review, to cover all the museums having historic furniture on exhibition or to list such furniture in full detail. Only the principal collections have been selected that will be found in public museums most easily accessible in all parts of the country. The student will find in these collections types of furniture of all styles and from all periods reviewed in this Manual. A later edition of the Manual may contain a more complete review of historic furniture if public demand is sufficient to warrant it.)

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## CHAPTER I

### INTRODUCTION

Although the establishment of museums in this country dates back for more than a century, our museums until recently have been comparatively few in number and less intensively developed than have those of Europe. Likewise has the exhibition of historic furniture in our museums been a more or less secondary activity. The reasons are obvious. We are still a new country insofar as time be regarded as an element of activity. Museums grow slowly, and particularly such exhibitions in museums as may be said to be native of the country or the society in which the museum is developed.

In later years, however, with the growing interest of the public in the manners, customs and environs of our forbears, there has been a growing interest in furniture exhibitions. A new and intensely interesting literature on the furniture of our ancestors is appearing. More people want to know how they lived, what they used, what they made and how they made it. Hence, such productions have become valuable to both private and institutional collectors, with the result that museums are now giving much time and thought to the development of furniture exhibits.

Credit for co-operation in gathering the material herewith presented is hereby sincerely given to the secretariat of the American Association of Museums and to the directors who so kindly responded to my request for information. It is hoped that in subsequent editions of this publication, the publishers will extend this department to cover all museums having furniture of historic import

Before the student of museum furniture enters upon any contemplation of the subject, he should visit and study the extensive wood exhibits at the American Museum of Natural History, New York City and the Field Museum of Natural History, Chicago. These are among the outstanding wood exhibits in the world and, with the aid of the article in this Manual by Mr. Arthur Koehler on the subject of furniture woods,\* the student can acquire a thorough knowledge of the technique of wood as well as visualizing it in various forms.

## CHAPTER II

### FURNITURE COLLECTION IN THE METROPOLITAN MUSEUM OF ART, NEW YORK CITY

By HENRY L. WARD

#### The American Wing

The furniture in the "American Wing" of the Metropolitan Museum of Art, that of early America, is by far the most outstanding in the United States.

Although the "American Wing" has been open for but three years, a studious attempt to display the most representative American homes from earliest Colonial times to 1825 has attracted much favorable attention. In 1909, Mrs. Russell Sage gave to the museum the extensive H. Eugene Bolles collection of American furniture which served as a nucleus about which has been gathered additional pieces and the necessary accessory examples of contemporary decorative crafts. Since then the museum searched for and acquired original rooms of dated houses, which it has used as appropriate settings, and also secured additional architectural details desirable as detached exhibits.

The building space necessary for the planned exhibit was provided by the museum's president, Mr. Robert W. de Forest, and his wife. They caused the erection of a wing 81 by 60 feet in area, divided into three stories and which, with much appropriateness, perpetuates at its free end, facing the court, the original facade of a high class, Early American public building. The old United States Assay Office, formerly on Wall Street, which was built between 1822-24, torn down in 1914 and its facade re-erected in 1923, form a part of this American wing.

\* See "Furniture Woods".



Recognizing the essential relationships between architecture, furniture and other decorative crafts, this presentation of furniture is shown in association with these other objects of contemporary periods. This adds immensely to the visitors' interest by rendering intelligible the wherefore of many things that otherwise might appear freakish.

### **Extent of Exhibits**

Indicative of the extreme care with which this collecting and installation has been made, it may be of interest to state that for a year and a half Mr. R. T. Haines Halsey, a trustee of the museum, and Mr. C. O. Cornelius of its Department of Decorative Arts, labored unceasingly searching out documentary evidence of the exact furnishings of Early American homes at the various periods covered. Newspaper files from Boston, New York and Philadelphia, of early dates, gave in their advertisements and other notices much of this information by indicating what the public was then buying in the way of hangings, wall coverings, bed and chair coverings, glass, pottery and silver as well as furniture itself. Lists of auction sales, inventories, etc., gave further data, so that original documentary evidence was secured as to the contemporaneity of every object entering into each room.

It has not been the aim to make these rooms duplicates in furnishings of any particular rooms now or previously existing but rather to make each one thoroughly typical of the finer American homes of the period and locality which they represent.

### **Homogeneity in Form and Decoration**

In the Metropolitan's scheme, the exhibits are divided into three main periods based on "homogeneity in form and decoration" for which they have assumed "as dates for the beginning and end of each particular style of expression the approximate time in which it was most general."

The earliest division extends from the beginnings of New England through the first quarter of the Eighteenth century, or from 1630 to 1725. Inasmuch as this wing is entered (from the second story of the main building) at its top on third floor and the visitor works downward, this earliest period is placed on the upper floor of the wing where it occupies six period rooms and a gallery.

## **"Old Ship Meeting House"**

The gallery, open to the roof, is a modified reproduction of the posts and trusses of the unique "Old Ship Meeting House" of Hingham, Mass., built in 1681. In this are displayed such specimens of "interior architecture, furniture and art-crafts of the earliest period of Colonial endeavor, with a few examples in which the first effects of the transition to a new style, appear" as are not required in the period rooms.

Four rooms, largely with original walls and ceilings, have been taken from old houses in New Hampshire, Connecticut, Rhode Island and Long Island and two rooms and an entry with stairs are careful reproductions of such in old houses of Massachusetts.

The studious care with which all of the room details, furniture and other accessories have been selected leave little opportunity for the introduction of anachronisms and "the whole group \* \* \* preserves a homogenous character which, strongly marked in the more conventional works of architecture and furniture, is echoed in the associated metalwork, textiles and pottery."

## **Gothic Tradition**

This first period is one of late Gothic tradition in which structural elements are straight pieces framed at right angles, except for gables. The decoration is mechanical as chamfering, moulding, cutting of silhouettes, turning and a simple, stiff, carpenter-like carving, mainly of Gothic origin somewhat modified by Renaissance motifs to which color was frequently added by painting or staining black and brick red. The kinds of furniture were restricted, consisting mainly of chests, cupboards, desk-boxes, chairs, stools and tables. Brightly colored cupboard-cloths, chair-pads, table carpets, window cushions, painted calico curtains, valances, bed hangings, ruffled chimney cloths, etc., lent color to what are probably commonly thought of as drab interiors.

## **First Quarter of Eighteenth Century**

The exhibit shows the introduction of continental and oriental influences toward the end of the first half century of colonization, and the general aspect of architecture and furniture evidences a refinement and elaboration which be-

came marked by the first quarter of the Eighteenth century. Thenceforth the forms of furniture evince changes by the practical disappearance of the court-cupboard and wainscot chair, the lesser use of the form, the evolution of the chest into the chest of drawers and the highboy, the introduction of the lowboy, the addition of drawers and a supporting frame to the desk-box and the marked increase in styles of chairs. Carving and turning took on greater refinement, veneers and figured woods came into use.

### **Period Between 1725 and 1790**

Descending to the second floor, covering the period between 1725 and 1790, we find a similar series of rooms consisting of a central gallery and five placed and dated rooms, the most notable of which is the large assembly or ballroom of the City Tavern at Alexandria, Virginia. This room itself has historic associations with Washington and Lafayette. Other rooms of this floor and period are an alcove from Alexandria, Va., a room from the home of William Fitzhugh, of Marmion, Va., one from Almodington, Md., and one from Samuel Powel's home in Philadelphia, Pa.

### **The Cabriole Period**

The furniture of this period is characterized by curved lines and Rococo adornment. Cabriole period is a term sometimes used because of the almost universal use of that type of leg, though the bracket foot was employed equally with the short cabriole with ball-and-claw. Turning as an important method of decoration disappeared. Chippendale influence was strongly felt in the Colonies. The Windsor chair became popular and many new forms of furniture appeared. Mahogany came into frequent use as did various kinds of haircloth coverings. The block front, the bow and the serpentine as methods of breaking up the flat surfaces of case furniture are shown as in use.

Following Biblical precedent that the first shall be last, so on the first floor of the wing we find the exhibit of the latest expression of furniture and allied arts shown under the classification of Early Republic to 1825.

As in the other two divisions of the collection, this floor contains a gallery, five main period rooms and an alcove. The architecture of these rooms displays an almost archaeological fidelity to Roman remains as uncovered at Her-

culaneum and Pompeii, a style also very evident in their contents.

Previous to the beginning of this period, 1790, English architecture, furniture and allied decorative arts had been revolutionized to late Roman classic, largely through the work of Robert Adam. However, because of the impasse that the Revolutionary War had created between England and America, this influence did not show its full effect in the United States until some years after peace was declared or at about the year 1790.

### **Reproductions of English Furniture**

The furniture of this historic division shows a marked refinement of lines and simple, classic adornment. The straight line is the basis but combined with it are semi-circles and ellipses, developing into a serpentine most commonly confined to horizontal usage in table tops, etc. Various new pieces, as the sideboard, required by the social life of the times, were added. The curved cabriole gave way to the tapering straight leg and the depths of skirtings of tables and chairs took on the proportions to their supporting legs that the entablature bore to the column height of the Romans. Designs of Adam modified by Chippendale, Hepplewhite, Sheraton and others were taken over and executed by American craftsmen. Duncan Phyfe and many artists of lesser fame of New York and elsewhere introduced other elements tending toward Americanization of our furniture.

At the time of strained relations with France, beginning in 1792, and extending to the close of the war of 1812 with England, patriotism ran high and national feeling found satisfaction in the introduction in furniture decoration of the spread eagle, often accompanied by a group of stars indicative of the number of states in the Union at the time the article was made. These emblems may be seen carved or inlaid on various articles of furniture, cast in metal work or appearing in embroideries, etc.

Studying this furniture exhibit from its earliest to its latest period, not alone gives the visitor a review of the evolution of furniture forms and decorations throughout our Colonial and early Republic periods, but it also impresses on the mind the reasons why many of these came into vogue and leaves the visitor with a lasting, concrete idea of how his ancestors lived in Early American days.

## CHAPTER III

FURNITURE COLLECTION IN THE MUSEUM OF THE  
RHODE ISLAND SCHOOL OF DESIGN,  
PROVIDENCE, R. I.

By MISS MIRIAM A. BANKS,

Curator of the Museum, Rhode Island School of Design

The student of period furniture will find at the Rhode Island School of Design an unusual opportunity to study Early American examples in pine and maple and also, especially in the collection given to the museum by Mr. Charles L. Pendleton, many choice examples in mahogany and walnut of the Georgian period, both English and American in origin.

**The Pendleton  
Collection**

In 1904, the Rhode Island School of Design acquired, through the bequest of Mr. Pendleton, his superb collection of Colonial furniture, and in 1906, the collection was installed in a fireproof Georgian mansion erected, with every attention to historical accuracy, especially for the purpose of housing the furniture. The building being of similar plan to the Eighteenth century house in which Mr. Pendleton had lived, permitted the installation of the furniture in essentially the same relative positions. Mr. Pendleton's ideal in collecting had been to build up a home such as a Providence gentleman of wealth and taste living in the latter days of the Eighteenth century might have inhabited, and when 21 years ago the Rhode Island School of Design opened the Colonial House to the public, it was a pioneer in displaying a collection of furniture in its natural setting.

With no striving for historical sequence, there is throughout the collection historical harmony. Examples of the Dutch style, introduced into England during the reign of William and Mary and perfected under Queen Anne, are numerous, and more numerous still are pieces which are of Dutch outline embellished with decorative details in the style we call Chippendale. So Chippendale in feeling is most of the collection that that style may be said to predominate and set the tone of the whole. Adam pieces are lacking. Hepplewhite is represented by the beautiful dining-room furniture and there are several pieces which may be assigned to the Sheraton school.

Mr. Pendleton appreciated the dignified simplicity of the

best Colonial cabinet work, and wherever possible acquired American pieces. There are four Philadelphia highboys, a block-front secretary-bookcase and a dressing table probably of Rhode Island workmanship, a long case clock, a number of piecrust tilt tables, several American Chippendale chairs, and a lowboy and a chamber table that are undoubtedly of Colonial origin.

### **Detailed Description**

The Pendleton collection comprises the furniture in two spacious hallways, a parlor, library, dining room, china closet, and three bed chambers. In the lower hall hangs a very interesting gilt mirror dating from the first quarter of the Eighteenth century. It is in the style of Daniel Marot, court architect for William III, on each side are graceful candle brackets and an unusually fine head is carved on the lower frame. The collection is rich in mirrors, there being 15 in all, including the convex mirrors of the girandoles. The chairs in the hall and library are unique, Dutch in outline but loaded with rich carving; the back rail ends in eagle heads whose beaks grasp the stiles, and eagle's talons hold the simulated drapery pulling from the splat. One of the most impressive pieces in the collection is the Chippendale sofa in the alcove in the parlor. It is eight feet long, and its ample back rises 30 inches above the seat and is crowned with a superb shell ornament at the center. Another splendid piece is the Hepplewhite sideboard in the dining room, with its serpentine front and its delicate hollywood inlay. A fine example in the Sheraton style is a large mahogany wardrobe with inlaid paneled doors. An American made bedstead, dating from 1750-1775, is considered by connoisseurs to be among the finest examples of Colonial workmanship. There is not a piece in the collection without merit and interest to the student of furniture. A detailed and scholarly catalogue of the collection was made by Mr. Luke Vincent Lockwood in 1904 and published by the Rhode Island School of Design in a limited edition of 160 copies.

### **Furniture Prior to 1750**

Displayed in a separate room in the Colonial House and in appropriate places in the galleries of the museum are other Eighteenth century pieces of furniture of similar types

to those in the Pendleton Collection and also earlier pieces which have been acquired by the museum as gifts from various sources and by purchase. Two rooms on the lower floor of the new museum building are devoted entirely to an exhibition of furniture dating prior to 1750, including a Hadley chest, two Seventeenth century chests on frames, two early Eighteenth century high chests of drawers, a paneled pine settle, a hutch-table, a pine wall cupboard, a fine Seventeenth century paneled chest with ebonized turned ornament on the stiles, an early Seventeenth century gate-leg table and several varieties of Early American chairs.

### Early American Collection

The furniture on display is supplemented by an unusually fine and comprehensive collection of Early American furniture, mostly of the cottage type, now in the storerooms. It is hoped that in the not too distant future it may be installed in a series of old rooms, forming a complement and an introduction to the Pendleton Collection of Eighteenth century mansion house pieces. There are early painted and paneled chests, chests on frames, pine and maple chests of drawers, and high chests of drawers of typical Colonial designs. There are nine sloped-top desks and secretaries and several small cupboards of oak and maple. There is an interesting cabriole-legged day bed and three cradles, a hooded one of painted pine, a very fine one of turned oak and one of Windsor type. Seven varieties of drop-leaf and some dozen other tilt-top, tavern and tripod tables are in the collection. A well-preserved corner cupboard with H and L hinges and one of later date with glass door, five spinning wheels, yarn reels, several interesting stools, among them an old milking stool, candle stands, a tripod writing-stand with candle holder attached, pulpit steps, and a schoolroom form are among the pieces. Of chairs there are a great number, leather-back, banister-back, slat-back, and of the turned and the Dutch type. There are three upholstered Queen Anne armchairs and over 40 varieties of Windsors. Of special interest are 13 children's chairs of different styles and periods, some of which are arm chairs and six of them high chairs. For intended display with the furniture the museum has a collection of accessories including metalwork, pottery and textile fabrics.



## CHAPTER IV

FURNITURE COLLECTION IN THE NATIONAL MUSEUM,  
WASHINGTON, D. C.

By THEODORE T. BELOTE

Curator, Division of History

Before describing the larger pieces of furniture in the National Museum collection it seems advisable to consider some interesting specimens in that collection of the small box desks which were very popular in America from about the middle of the Eighteenth century to the middle of the Nineteenth. These writing boxes, as they may be termed, seem to have developed from a similar piece of furniture belonging to an earlier period known as Bible boxes and so termed because they were in most instances used as cases for family Bibles. The writing box which succeeded the Bible box was more ornate than the former and was divided into compartments for the accommodation of stationery, pens, ink and sand. The National Museum collection contains three such cases all of very great interest as specimens of the cabinetmaking of their time and of the highest possible historical interest and importance on account of their historical associations.

**Thos. Jefferson  
Writing Case**

The most important of these little writing cases is one which was owned by Thomas Jefferson at Monticello and which was used by him in the preparation of many of his state papers, notably, the Declaration of Independence. This case, which is made of the finest mahogany, is a complete unit enclosing a drawer which opens to the left of the observer and which is divided into five compartments of varying size for the accommodation of paper, pens, ink, sand and other writing accessories. To the top of the case are hinged two wooden leaves. The outer leaf is the cover of the case and the inner one may be supported at varying heights and thus serve as a book rack when the lid is dropped down. On the top of the body of the case is pasted the following memorandum in the handwriting of President Jefferson: "Thos. Jefferson, gives this writing desk to Joseph Coolidge, junr. as a memorial of affection. It was made from a drawing of his own, by Ben Randall, cabinetmaker of Philadelphia, with whom he first lodged on his arrival in that city in May, 1776, and is the identical one on which he wrote the Declaration



of Independence. Politics as well as religion has its superstitions, these, gaining strength with time, may, one day, give imaginary value to this relic, for its association with the birth of the Great Charter of our Independence." This memorandum is dated November 18, 1825.

On the death of Joseph Coolidge in 1880 this desk became the property of his children Algernon Coolidge, J. Randolph Coolidge, Thomas J. Coolidge, and Mrs. Ellen Dwight, who presented it to the United States government. It was placed in the care of President Rutherford B. Hayes by Hon. Robert C. Winthrop and accepted on behalf of the nation by joint resolution of congress, approved May 1, 1880.

### **Alexander Hamilton Writing Desk**

A second box desk of the same general type as the one just described in the National Museum collection was owned during the latter part of the Eighteenth century by the distinguished American statesman and financier, Alexander Hamilton, who was first secretary of the United States Treasury Department and who served in that capacity from 1789 to 1795. The desk in the National Museum collection was used by him in the preparation of many of his state papers. It was presented to the museum in 1916 by his grandson, Dr. Allan McLane Hamilton.

### **Capt. Charles F. Hall Writing Desk**

A third desk of this type in the National Museum collection is one which was owned by the distinguished Arctic explorer, Captain Charles F. Hall. This desk which was carried by Captain Hall on the occasion of his last voyage to the Arctic regions in 1871 was found by Sir Allen Young during his expedition in the British yacht Pandora at Life Boat Cove, on the west coast of Greenland in 1876. It was presented to the National Museum by Miss Annie S. Hall in 1901.

### **Washington Chairs**

The chairs in the National Museum collection form the largest and most important series of pieces of furniture of a single type in the museum collection. Of the greatest historical interest in this connection are a number of chairs which were owned by General and Mrs. Washington at

Mount Vernon. These include a very large, plain, heavy, solid armchair of Hepplewhite design from the general's bedroom; 12 straight chairs of Sheraton design, made of walnut with the splats carved in the form of a lyre; and two mahogany armchairs of Hepplewhite design with the splats carved in the shape of a shield and the seats upholstered with black horsehair cloth. These chairs form a part of the Lewis Collection of Washington relics, purchased by an act of congress approved June 20, 1878 and at that time deposited in the United States patent office in Washington, D. C. The collection was transferred from the patent office to the National Museum in 1883. The museum collection also includes a very fine old mahogany ladder-back chair owned by George Washington which was lent to the museum in 1916 by Walter G. Peter.

#### **Leah F. Washburn Chair**

The earliest piece of furniture of this character in the museum collection is a slender high straight backed pew chair with rush bottom which was owned during the Colonial period by Leah F. Washburn. This chair was presented to the National Museum in 1913 by Mrs. Albert Warren Kelsey. A second chair of the Colonial period but one of a very different pattern from the one just described, is a chair which was owned by Benjamin Franklin, and was presented by him to Thomas Jefferson. This chair is an unusually small and low armchair the back, sides, and seat of which are enclosed with leather which is fastened with brass headed tacks. It was lent to the museum in 1916 by James C. McGuire.

#### **Rufus Putnam Chairs**

In the collection of objects relating to the career of Brigadier General Rufus Putnam, which were presented to the museum in 1911 by Judge E. M. P. Brister, are five straight chairs and two armchairs. These chairs are all made of pine, painted black, with rush seats and backs. The designs are typical of the American homemade chairs of the first decade of the Nineteenth century.

#### **Daniel Roberdeau Chairs**

A very heavy old English corner chair of ornate design, which was owned during the War of the Revolution by

Brigadier General Daniel Roberdeau of the Pennsylvania militia, was presented to the museum in 1927 by the estate of Mr. and Mrs. Roberdeau Buchanan. Two chairs of unusual interest in the museum collection were owned during the War of the Revolution by Major General Philip Schuyler and bequeathed by him to his daughter Elizabeth who married Alexander Hamilton. In 1913 these were presented to the museum by Dr. Allan McLane Hamilton. At the same time Dr. Hamilton presented two chairs which were once the property of his grandfather Alexander Hamilton. The two chairs which were owned by General Schuyler were of a homemade design like the ones owned by General Putnam and described above. The chairs owned by Alexander Hamilton were more ornate and were probably imported from France.

### **Miscellaneous Chairs**

Two chairs of curious design and much historical interest in the museum collection were owned by Chief Justice John Marshall and bequeathed to the museum in 1905 by Alice Key Browne. A chair of unique pattern in the museum collection was designed by Thomas Jefferson and often used by him when reading or writing. This chair was presented to the museum in 1887 by Miss Ellen Douglass. Two armchairs of French manufacture which were owned by President James Monroe were lent to the museum in 1912 by Mrs. John Cropper. These chairs have slender frames decorated with scroll designs, and the fronts of the arms are carved to represent sphinx heads. A chair of unusual interest in the museum collection is a ladder-back Chippendale which was owned by William Henry Harrison. This chair was deposited in the museum by the National Society of the Colonial Dames of America in 1899. A rocking chair of exceptional design in the museum collection was owned by Henry Clay and was bequeathed to the museum in 1915 by Nathan P. Beers.

### **U. S. Grant Chair**

The period of the Civil War is represented in the museum collection by two chairs of unique interest. These chairs were occupied respectively by General U. S. Grant and General Robert E. Lee in the room of the McLean home at Appomattox Court House, Virginia, when the two generals met there to arrange for the surrender of the

Confederate forces under Lee's command, April 9, 1865. The chair occupied by General Grant on this occasion is a heavy mahogany chair of the swivel type. The seat, arms and legs are plain, and the upper part of the back is heavily upholstered with black leather. This chair was bequeathed to the National Museum in 1906 by Honorable Wilmon W. Blackmar, to whom it had been presented by Major General Henry Capehart, U. S. Volunteers. The donor of the chair to the museum gives the following statement concerning its history: "General Capehart, on whose staff I was provost marshall, paid Wilmer McLean, the owner of the house where the surrender took place at Appomattox, \$10 in gold for the chair and I carried it before me on my horse to our lines. General Capehart a few years before his death gave the chair to me." The chair occupied on the same occasion by General Lee is one of quite different design. It is a roomy armchair made of maple. The front legs are round and straight; the rear legs are square and continue above the arms to form a light frame with a carved headrest and cane back. This chair was presented to the National Museum in 1915 by Mrs. Bridget O'Farrell.

### **Susan B. Anthony Chair**

A chair of much historical interest recently acquired by the National Museum is an antique armchair of swivel type which was owned and used by Miss Susan B. Anthony during her long career as an anti-slavery leader and an exponent of woman suffrage. This chair was presented to the National Museum in 1922 by Miss Anthony's biographer Ida Husted Harper.

### **Chests of Colonial Period**

The National Museum collection of furniture includes a number of chests of more than the usual interest. The earliest of these is a carved cedar chest which was owned in New England during the Colonial period and was deposited in the National Museum by the National Society of the Daughters of the American Revolution in 1898. A second chest of the Colonial period, and one of greater personal and intrinsic interest than that just described, is an iron chest which was owned by Daniel Parke Custis, the first husband of Mrs. George Washington, and was bequeathed by her to her grandson, George Washington

**Parke Custis.** This chest which is about 20x11x12 inches in size is made of wrought iron; the edges are faced with heavy wrought iron strips and all are joined together by heavy iron rivets. The lid is secured at the back with three heavy hinges and in the front by a flat lock and two padlocks. One can easily picture this chest filled with silver pieces of eight and gold doubloons of the Colonial period. This chest was lent to the museum in 1901 by Miss Mary Custis Lee.

The collection of furniture relating to General Washington also includes a large brass-bound mahogany chest on casters, which was used at Mt. Vernon as a receptacle for silver plate, and two smaller tea chests of Oriental workmanship. A chest of exceptional beauty and interest in the Washington collection was used by Nellie Custis as a sheet music case. This chest is made of mahogany and the lid is secured by brass lock and hinges. These four chests all form a part of the Lewis Collection of Washington relics, the history of which has already been described.

### **Washington Tables**

The National Museum collection includes a number of tables of exceptional historical interest. This series begins with two tables which were owned by General and Mrs. Washington at Mount Vernon. One of these is a large walnut table with bow legs and globular feet. The other is a small mahogany tea-table with plain straight square legs. The top of this table is surrounded by a lattice work rail about two inches high. These two tables form a part of the Lewis Collection of Washington relics, the history of which has just been outlined.

### **Pattie Custis Dressing Table**

A single piece of furniture of unique interest in the National Museum collection is a child's dressing table of exquisite workmanship made in France and presented to Pattie Custis, the granddaughter of Mrs. Washington, by General Lafayette. This table is made of various types of inlaid woods, with a small mirror in the center and drawers on either side. It was lent to the museum by Walter G. Peter, in 1923.

## **Revolutionary Furniture**

Other tables of special interest in the National Museum collection include two mahogany side tables with slender straight square legs and two shelves below the top. The sides of these tables and the legs are decorated with panels enclosed by a single line of gold inlay which gives them an ornate appearance. They were owned during the period of the Revolution by Alexander Hamilton and were bequeathed to the National Museum in 1913 by Dr. Allan McLane Hamilton. At the same time Dr. Hamilton also presented to the museum an exquisite oval side table of the same design as the ones just described. This series also contains a small mahogany work table of ornate and curious design which was owned by Mrs. Alexander Hamilton. The top of this table is circular and bears a mirror which is framed by the table rim. This top is supported by two slender bowed standards attached to an oval base which in turn is supported by four short legs of the same type.

## **Dolly Madison Work Table**

This portion of the collection includes a small rectangular work table which was owned by Dolly Madison. This table is fitted with drop leaves and the body encloses two drawers. The cylindrical-shaped legs descend to a square base which is supported by casters. This table was lent to the museum in 1917 by James C. McGuire.

## **Thos. Jefferson Table**

A table of unusual interest in the National Museum collection is one which was owned by Thomas Jefferson and was presented by him to N. P. Trist who presented it to David Meconky in 1848. This is a small mahogany table of ornate design. The lower part of the top is decorated with a line of beadwork. The legs are made in the form of ropes and the base, which is also decorated with beadwork, is supported by four cylindrical pieces, one at each corner. The top is covered with a marble slab. This relic was presented to the National Museum in 1907 by Mrs. Frederic C. Brinton.

## **Rufus Putnam Table**

This portion of the collection also includes one-half of a large mahogany dining table which was owned by

Brigadier General Rufus Putnam, U. S. Army. The top and sides of this table are plain. The legs which are circular are decorated with heavy spiral corrugations and the upper parts are decorated with oak leaf panels. This table was presented to the museum in 1911 by Judge E. M. P. Brister.

#### **U. S. Grant Table**

A table of exceptional interest in the National Museum collection is one which was used by General Ulysses S. Grant in the McLean home at Appomattox Court House, Virginia, April 9, 1865, when he wrote the note to General Robert E. Lee containing the conditions for the surrender of the Army of Northern Virginia. This table is a small plain oval top table with slender spiral legs supported at the bottom by pieces which are united by a spiral of the same design as the legs. This table was presented to Mrs. George A. Custer, the wife of Brigadier General George A. Custer, U. S. Volunteers, in 1865, by General Philip H. Sheridan, and was lent by her to the National Museum, in 1912.

#### **Susan B. Anthony Table**

One of the most interesting tables in the National Museum collection, both as a personal relic and as a piece of furniture, is the table which was owned by Miss Susan B. Anthony during her long career as an advocate of woman suffrage. This table has a circular top hinged to a single heavy cylindrical base which is supported by three heavy scroll-shaped feet on casters. This table was presented to the National Museum in 1920 by the National American Woman's Suffrage Association.

#### **Bookcases and Secretaries**

The National Museum collection of furniture includes two very interesting examples of the large combination desks and bookcases known as secretaries. One of these was owned by Brigadier General Rufus Putnam and was presented to the museum by Judge Brister. The other, which is of a more ornate and interesting design, was in the room in the McLean mansion at Appomattox, Virginia, in which the terms of the surrender of the Army of Northern Virginia were agreed upon by General Grant and

General Lee. This secretary was presented to the museum in 1904 by Miss Caroline Phelps Stokes.

### American Colonial Pieces

In 1924, the National Museum received as a gift from Mrs. Gertrude D. Ritter a collection of objects representing the interior furnishings of an American Colonial room. The furniture belonging to this unit includes a small oval pine table made about 1700; a walnut dining-room table of the early part of the Eighteenth century with original brasses on the drawers, and scalloped apron underframe; a graceful Windsor rocking chair of 1765; an easy chair made by Savery of Philadelphia, between 1750 and 1775, with ball-and-claw foot, shell ornaments and cabriole legs; a mahogany ladder-back chair of the latter part of the Eighteenth century of exceptional beauty of design, with carved top rail and arms and pierced splats; a side chair and an armchair of Queen Anne type, with fiddle back and Spanish feet; an infant's walnut cradle of about 1700 of very interesting general design; a Pennsylvania Dutch love chest, dated 1765, with the initials of the bride and groom on either side of the heart-shaped key plate; a walnut chaise longue from the Otis house, Marshfield, Mass., of Dutch type, with slat back and six cabriole legs terminating in club feet; a spinning wheel of the period completes this section of the exhibit. The lighting appliances include half a dozen tin sconces with glass reflectors, two betty lamps, a wrought-iron candlestick and two candle moulds.

## CHAPTER V

### FURNITURE COLLECTION IN THE PENNSYLVANIA MUSEUM, PHILADELPHIA, PA.

By JOSEPH DOWNS

Assistant Curator of Decorative Arts

The furniture collection of the Pennsylvania Museum covers four centuries, namely from the Gothic period in France to the Empire period in America. The earliest piece is a French oak chest front of four tracery panels and dates about 1450. A chest in walnut supports on its front the flamboyant leafage that appears so often on late Gothic verdure tapestries. An oak livery cupboard,



illustrated in Macquoid's "Age of Oak", is another piece of the English Gothic style.

### **Italian Renaissance Furniture**

The Italian Renaissance is represented by several cassoni, one of which, from Venice, is decorated in pastiglia and gilt. Another is gessoed and gilt and three others are finely carved in walnut, following in a characteristic manner the Roman style. Two chests of drawers of the late Sixteenth century show the influence that Michael Angelo exerted on the decorative arts during the later Renaissance. Walnut chairs of the Dante, Savonarola, and high-backed armchair type covered with embossed leather and velvet complete the Italian furniture group.

A tall cabinet of the Ile de France school of cabinet-making in the style of Jean Goujon, and a draw-top table, severely architectural, are in the same manner.

### **English Pieces**

England in the Sixteenth century derived her inspiration from Italy and by means of the foreign craftsmen first imported by Henry VIII. An oak livery cupboard and chest both show the combination of marquetry and carving, while a serving table with two shelves, carved vase supports and guilloche bands on the frieze, is an outstanding piece. A walnut vargueno with iron appliques and hinges is of the same period in Spain. The interior is enriched with carved bone and gilt and its stand suggests the Mudejar influence through the use of geometric paneling.

The early Seventeenth century in England is best represented by the oak wainscot chairs, paneled chests and gate-leg tables that still show the Tudor influence of carving and turning. Two high-backed chairs of pear wood indicate the Flemish influence in their double scrolled legs, high-crested backs and cane panels. From Portugal four high-backed chairs, with Spanish feet and arched stretchers, covered in embossed leather and further enriched with nail-heads, are excellent examples of a style that contributed much to England and the Colonies. A pair of marquetry and walnut candlestands, a desk and chest of drawers are late Seventeenth century Dutch pieces.

The English furniture of the Eighteenth century includes an early Georgian side table of mahogany, marble-topped,

and standing on paw feet. A pair of Queen Anne wing chairs and an early Georgian wing chair are also noteworthy. With these is a gilt mirror with side brackets for vases.

### **French Furniture**

Among the French furniture of the Eighteenth century are two commodes of tulip and mahogany, and mounted with ormolu. The larger of the two was executed by Slodtz. A beautiful set of Louis XVI furniture includes two canapes, six fauteuils and four conversation chairs. The frames are painted white and gold, and enriched with finely cut leaves and carved mouldings. They still bear the original upholstery of yellow and blue silk.

### **Early American Furniture**

The American furniture collection can boast of several important Seventeenth century pieces, particularly two Hadley chests carved with an all-over floral pattern archaically drawn and a chest-on-frame of oak and pine. These are New England pieces, while from Pennsylvania comes a large walnut gate-leg table, its gates and stretchers also showing the bold vase turnings of the legs. To the first years of the Eighteenth century belong a New England highboy in the William and Mary style of walnut and maple, on six trumpet-shaped legs, and a Pennsylvania lowboy in the same style.

### **American Colonial Period Pieces**

Philadelphia has long been recognized as the source of the finest furniture in the ornate Chippendale style in America, and of this Golden Age of cabinetmaking the museum owns several splendid examples. A serpentine-front walnut chest of drawers, on ogee bracket feet, bears the label of the maker Jonathan Gostelowe. A chest-on-chest, with mouldings and details of joinery of close similarity to the Gostelowe piece, shows a latticed pediment and flower-filled basket for a central finial, the only other carving appearing on a fret-carved frieze. A walnut highboy with the Rococo shell and streamer carving on its pediment, and standing on claw-and-ball feet, is one of the most characteristic Philadelphia pieces. A lowboy is of the same period. The appearance of similar carving on

paneling in Philadelphia interiors, particularly in the Blackwell House, Mount Pleasant and Whitby Hall, gives rise to the opinion that all carving was done by craftsmen who did not make furniture but were employed only to enrich it. A large sofa, supported by cabriole legs and boldly cut claw-and-ball feet, is also of the Philadelphia school. These pieces of the Philadelphia Chippendale period are exhibited in Mount Pleasant, a fine Colonial house which is maintained as a branch museum by the Pennsylvania Museum. A superb mahogany mirror, although English, is also exhibited there and shows the mingling of two periods, the early Georgian with the Chippendale. Several other mirrors are worthy of notice owing to the fact that they bear the labels of Philadelphia makers—two having been made by John Elliott and one by Thomas Natt.

The American Sheraton and Hepplewhite periods are represented by a set of six Sheraton side chairs, an oval-back Hepplewhite chair, a fine swell front satin-wood and mahogany chest of drawers, and several card and Pembroke tables.

The Pennsylvania-German decorated furniture is well represented by six dower chests each painted in the distinctive style of as many counties. Several are dated and one is signed by John Seltzer. Two high chests of drawers, also decorated, and several paneled cupboards and chairs are unmistakably of local provenance.

In the Empire style there are two sets of side chairs, a card table with lyre pedestal and a large sofa.

Besides this permanent collection of furniture, owned by the museum, there is a considerable loan collection, chiefly American of the Chippendale, Sheraton and Hepplewhite periods. There are about 150 pieces in this group.

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## CHAPTER VI

### FURNITURE COLLECTION IN THE DETROIT INSTITUTE OF ARTS

BY MISS JOSEPHINE WALTHER  
Associate Curator of American Art

In the plan of arrangement adopted in the new building of the Detroit Institute of Arts, that of a series of period rooms in which furniture, ceramics and textiles are grouped with the paintings and sculpture in much the same way as they would be in a private collection, the

furniture which the museum owns takes on a new dignity and interest. Not only do the individual pieces show to better advantage, but the student is given far greater opportunity to observe how closely the furniture forms followed the general rhythm of the period, reproducing in their lines and decoration the same fundamental characteristics that are found in the architecture, painting and sculpture of the same period.

### **Diversity of Exhibit**

The close relation which exists between furniture forms and decoration and the style of the architecture, painting and sculpture of the same period, becomes at once apparent, and our interest in furniture, as an index to the spirit and general rhythm of an epoch, takes on a new enthusiasm. We find also how closely allied are the styles of the different countries, Italy, Spain, France, England and America, in a given period, and in the close proximity of the various rooms to each other, it becomes a much easier matter for the student to date a given piece, for he soon finds that all Seventeenth century furniture, whether it be Spanish, French, Dutch or English, will follow much the same general rectangular form, and that the curved lines and Rococo carving of the Eighteenth century are prevalent throughout both Europe and America. He will become aware, of course, that just as French painting differs from English painting of the same period, or Spanish from Italian, so similar well-defined national characteristics show themselves in the furniture, and he is soon able to differentiate between French lightness and grace, Dutch solidity and sturdiness, and English "reasonableness," or between the pure Rococo of Louis Quinze and the modified Rococo of English Chippendale.

### **English Furniture**

In the new building the visitor enters first the galleries of modern art, with which he is most familiar, and proceeds backward in chronological order through an Eighteenth century English room, and Eighteenth century French room, a suite of Dutch and Flemish Seventeenth century rooms, a southern Baroque gallery and from there on through three Italian Renaissance rooms to the Gothic Hall. In all of these rooms examples of the furniture of the period is shown.

In the room of Eighteenth century English art one will find the transition forms of the last part of the Seventeenth century in such pieces as the walnut veneer chest of drawers inlaid with bone, a piece combining Jacobean and William and Mary features, the walnut cabinet on stand, dating about 1690, the blue and gold lacquer cabinet with Chinese motifs of the late Carolean period, and the carved walnut chairs combining English and Flemish characteristics.

### **English Late Eighteenth Century Exhibit**

Of the later Eighteenth century style there is a fine pair of inlaid Sheraton card tables; two Sheraton armchairs; a Chippendale armchair, mirror, table, stool, and fire screen; and an interesting Adam settee in gilded stucco, upholstered in green damask of the period.

The museum was fortunate enough to secure an original French room of the Eighteenth century with beautifully carved paneling and with its original console tables and mirrors. A suite of Louis Seize furniture, upholstered in tapestry, furnishes this room, and in the adjacent hallway is a fine bench of typical Louis Quinze design.

The rooms of northern Baroque art contain a number of the representative pieces of this period. Of Dutch origin is the red lacquer cabinet imitating Chinese lacquer, the marquetry chairs, the large kas inlaid with palisander and mahogany, the little table with top of Delft tiles, and the small oak chair with carved stretchers. A late Elizabethan table with carved bulbous legs occupies the center of one of these rooms and around it are placed leather covered chairs of Seventeenth century German workmanship. This room also contains an English Jacobean buffet and side table.

### **Spanish and Italian Furniture**

In the gallery of southern Baroque art the furniture is mostly of Spanish provenance. Of particular interest are the two fine cabinets inlaid with bone in the Moorish style and painted and gilded. A Spanish oak table and bench, a small gilded stucco chest with modeled design of dolphins and crossed swords and scales, and two chairs inlaid with bone are all excellent examples of the Spanish cabinet-maker's art, and with the carved French cabinet, the Italian cassone with battle scene carved in high relief and

the large Italian credenza of the Seventeenth century, add much atmosphere to this interesting gallery.

In the first of the Renaissance galleries, in which are displayed paintings and sculpture of the High Renaissance, are two excellent carved cassoni, of Roman workmanship after Florentine models, and several high-backed armchairs upholstered in Florentine tooled leather.

The various types of the furniture of the Italian Renaissance, which served as models for most of the furniture of the later periods, are well illustrated in the two other Italian galleries. They include two choir stalls, one of carved walnut, the other of walnut inlaid with lighter woods; several cassoni showing the various types of this important article of furniture, two carved in high relief, one inlaid, one with stucco decorations, and an early type with flat geometric carving; several chairs, some dating in the Fifteenth, others in the Sixteenth century, among them a curule or Savonarola chair; and a fine carved walnut cabinet whose motifs are closely connected with the architecture of the period.

### **The Gothic Period**

The Gothic Age is well represented by a number of the chests which played so prominent a role in the furniture of this period. There are the various types which were developed in the different countries: the Low Countries, Germany, Switzerland, France and Italy, some with simple linenfold paneling, others quite plain with enormous wrought iron hinges and locks.

### **Early American Exhibit**

The museum has just begun its collection of Early American furniture, and is able so far to show only a few pieces. Of the earlier types are a tavern table, a child's high chair, several forms and benches, and a fine Carver chair. Of the Eighteenth century styles there is a handsome maple desk of the Queen Anne period, several Sheraton, Hepplewhite and Chippendale chairs, an excellent walnut highboy of about 1740, a very fine pair of Sheraton card tables, an Aaron Willard clock and several different types of Eighteenth century mirrors.

The museum has just come into the possession of four choice Duncan Phyfe chairs of a little different type than are usually met with. They have a typical lyre-back with

four strings, but the cross pieces above and below the lyre, instead of being straight as in most examples, are straight only immediately above and below the lyre, and have between this straight piece and the side rails small turned ornaments which give an added grace and delicacy to the design. They have a well-authenticated history of having been bought in New York during the first decade of the Nineteenth century and are undoubtedly from the workshop of Duncan Phyfe.

## CHAPTER VII

### FURNITURE COLLECTION IN THE CALIFORNIA PALACE OF THE LEGION OF HONOR

By CORNELIUS B. SAGE-QUINTON  
Director

The works of art in the Collis Potter Huntington Memorial Room were presented to the California Palace of the Legion of Honor by Dr. Archer Milton Huntington as a memorial to his father, the late Collis Potter Huntington, and are of the highest artistic value. They are principally Eighteenth century French and cannot be duplicated. Critics have pronounced this room the most beautiful and complete in the world and the objects contained therein are the rarest of their kind. To the French objects of art have been added four Chinese vases—three Black Hawthorne of the K'ang Hsi period and one Ming—and three rare Dresden vases.

Briefly described, the collection numbers the following historic pieces:

#### Louis XIV, XV and XVI Pieces

Louis XV fourfold Rose du Barry screen, Boucher tapestry (from the collections of the Earl of Carrington and the Prince Polytzoff).

Louis XV glass top table, attributed to Meissonnier (1695-1750), the greatest designer of the Rococo period. This is one of the finest examples in existence of the carving of this period.

Louis XV commode, with marquetry work inlaid in tulipwood, surrounded with kingwood and embellished with engraved ivory and fine ormolu mounts. This piece has serpentine front and ends.



Louis XIV chairs, covered in old tapestry with medallions of Aesop's Fables (from the collection of Mme. Lelong).

Louis XV Bonheur de Jour, with one drawer and small cabinet at the top and shelf below, inlaid with marquetry of trellis design in harewood, with rosettes in satinwood on tulipwood ground, mounted in ormolu in the form of shells and a scrollwork at the corners and leaf mouldings on the edges.

Louis XV upright secretary, with marquetry of flowers mounted with old bronze with original gilding of the time (from the collection of Prince Armin of Berlin).

Ormolu clock by P. Sormini, with emblematic design and sunburst in rear, two cupids in adoration of the medallion portrait of Louis XVI.

Louis XV child's bergere chair, beautifully carved and gilded, frame covered with hand loom brocade of the period.

Louis XV commode, with checker board inlay in tulipwood, double bow front mounted with beautifully chiseled ormolu mounts after the style of Caffieri (1723-1792).

Louis XV carved and gilt screen with Aubusson tapestry panel.

Louis XV inlaid cabinet, with beautiful marquetry panel and ormolu mounts. Contains writing board and sliding front concealing drawers. Very fine detail and workmanship.

French chairs—date about 1665. The frames are beautifully carved, gilded and enameled and have the small needle point of the period.

Settee, Beauvais tapestry, cupids and flower garlands, on the seat, fruit and arabesques (from the collection of the Count Boni de Castellane).

Louis XV *escritoire*, containing panels of marquetry and landscape designs inlaid with checker board and floral patterns in king and tulip woods, ormolu mounts.

Louis XIV carved walnut armchair, covered in petit point needlework. (This piece formerly was in the Chateau of the Duc de P'Epéron in southern France which was plundered during the Revolution.)

Louis XV chairs, covered with old tapestry probably after the cartoons of Berain (1636-1711).

Louis XV commode, mounts attributed to Caffieri (1723-1792), the master designer of metal furnishings. This piece has all-over floral marquetry design on the front and on two ends.

Louis XV table, in various rare woods, inlaid with



medallions of pastoral scenes and trophies of the hunt, rural scenes at front and sides of the apron, mounted with ormolu. (This piece is an exceptionally choice example from the collection of the Honorable Mr. Baring.)

Louis XV commode, marble top, ormolu mounts attributed to Caffieri (1723-1792), having his usual fine chasing and water gilding finish. The front of this piece, which is inlaid with selected and matched grained mahogany, is one of the finest examples of cabinet work in existence.

Little "tricoteuse". The top is of glass forming a showcase.

Louis XV roll top marquetry desk, ormolu mounts, many drawers and secret compartments, one of the finest examples of Louis XV cabinet work. (This piece formerly was the property of the Duke de Veragua, having been in the Veragua family since 1770.)

Louis XV table, decorated after the manner of Boulle (1642-1732), inlaid with mother-of-pearl with brass mounts engraved, chased and water gilded.

Louis XIV table, by Boulle (1642-1732) with brass inlays, ormolu mounts, and an embossed leather top.

Louis XV *escritoire*, beautifully shaped interior, secret compartments, fall board covered with leather and embellished with ormolu mounts.

Louis XV little chair, on the top Venus and Cupid, chair in the shape of a heart, two little doves on border (from the collection of Lady Harrington).

Louis XV harpsicord, finished in green enamel and gold, with painted figures and carved ornament in low relief, supported by a very ornate carved base.

Louis XV Aubusson rug (37 x 18), made on a hand loom.

Four Louis XIV Gobelin tapestries, after the cartoons of Claude Audran, the teacher of Watteau. These tapestries form one of the few remaining sets of the "Portieres of the Gods", the subjects of which were the seasons and the elements. (They are from the collection of the Count Boni de Castellane.)

Juno, the Queen of the Gods, typifies Air.

Diana, the Goddess of the Hunt, typifies Earth.

Venus, the Goddess of Love, typifies Spring.

Ceres, the Goddess of Fruit and Flowers, typifies Summer.

Louis XIV stool, carved wood, decorated on four faces

with grotesque heads, covered with stamped velvet, work is French and possibly by G. Toro.

Louis XV armchair, covered with petit point tapestry (from the collection of Sir John Dean Paul).

Louis XV armchair, covered with petit point tapestry (from the collection of Sir John Dean Paul).

Louis XV armchair, covered with petit point tapestry (from the collection of Sir John Dean Paul).

Regency armchair, carved wood, covered with stamped velvet, large flower on white ground worked with silver (from the Rudolph Kahn Collection).

Seventeenth century Flemish verdure tapestry (24 x 16).

Beauvais tapestry "Bohemian Feast".

Seventeenth century Flemish tapestry "Spring", woven in Brussels about 1680, one of the "Four Seasons" set in the De Sagan Palace, Paris.

## Chinese Antiques

Trumpet-shaped black Hawthorne vase, Chinese of the K'ang Hsi Dynasty (1661-1722 A. D.) 29½ x 11.

Trumpet-shaped black Hawthorne vase, Chinese of the K'ang Hsi Dynasty (1661-1772 A. D.) 28 x 11.

Trumpet-shaped black Hawthorne vase, Chinese of the K'ang Hsi Dynasty (1661-1722 A. D.) 22½ x 10.

Dresden vase—blue, white and gold with brass trimmings, design of pears, 22 x 10½.

Dresden vase—blue, white and gold with brass trimmings, design of green grapes, 20 x 8.

Dresden vase—blue, white and gold with brass trimmings, design of purple grapes, 20¾ x 8.

Vase, Chinese, Ming Dynasty (1368-1644 A. D.), Dark blue, design of figures on horseback, 14½ x 13.

## Louis XV Tables, Desks and Chairs

Louis XV small table.

Louis XV small table.

Louis XV commode table.

Louis XV commode table.

Louis XV desk, having top on hinge and faced with leather, drawers lift up on spring, forming desk.

Louis XV kidney-shaped table, having slide front covering drawers, two swing drawers, two swing drawers on end.

Louis XV kingwood library table.

Louis XV desk.

Louis XV armchair, painted wood, covered with wool needle work.

Louis XV small gilt chairs, cupids carved on back, silk covered seat.

Louis XV chaise longue in three pieces, giltwood old, new yellow silk covering.

Louis XV stool, carved and gilded wood, beginning of Louis XV oblong form, rests on four bent legs—covered with flowered silver brocade (from the Rudolph Kahn Collection).

The oldest objects in the collection are two armchairs with beautifully carved, gilded and enameled frames, covered with the small needle point of the period. These are early Louis XIV (reigned from 1643 to 1732), showing a straightness of line, and heaviness of form definitely suggestive of the Roman.

## Louis XIV Furniture

Other works in the room which also are Louis XIV, but of a later date, are: four chairs covered in old tapestry with medallions of Aesop's Fables, from the collection of Mme. Lelong; and a carved walnut armchair, covered in petit point needlework, formerly in the Chateau of the Duc de P'Epéron in Southern France which was plundered during the Revolution. The furniture of this later period is characterized by a larger introduction of curves, by a further departure from the classic, by a vast increase in ornamentation, and a lavish display of wealth. In chair and table legs the curve was always graceful, and carefully studied, and even then the ornamentation was most profuse; the effect was that of richness rather than redundancy. This increase in applied ornamentation, and the greater elaboration of it, gave rise to a vast amount of exquisite wood and stone-carving, and to a general desire to enrich everything. Andre Charles Boulle (1642-1732), who is represented in this collection by a table with an embossed leather top, invented his famous inlay of tortoise shell and metal in furniture, and ormolu mounts were created. The demand for richness of effect suitable for a setting for so magnificent a monarch as Louis XIV (called Louis le Grand) aroused the desire for many beautiful art works. This led to the purchase for the king of the Gobelins' factory which developed into a place where every

sort of interior decoration and fitment was made, becoming a vast studio in which the artists and workmen of the world were gathered.

### The Rococo Style

The remainder of the furniture in the Huntington room is of the period of Louis XV (1723-1774). The Louis XV style differs from that of the preceding period in that it abandons stateliness for luxury and daintiness, the straight line for the more graceful curve, strong colors for more delicate tones. The pieces in this group range from the less ornate to the elaborate Rococo and show the smoothly executed marquetry, the skilfully chased metal work and the cabriole or knee-curved leg so characteristic of the period. The word Rococo is said to be derived from "roc et coquille" (rock and shell) or "Rocaille" (rock work) on account of the frequent use of rock and shell motifs. In the later Rococo the rock detail was less in evidence while the shell work was expanded into elaborate details. This style had its origin in Italy, rather than in France, and was, in its earliest form an actual conventionalization of rocks and shells. The two ruling spirits of this period were Jules-Aurele Meissonnier (1695-1750) and Francois Boucher (1703-1770). Meissonnier was the greatest designer of furniture and carried the Rococo style to the utmost extravagance. His art is based on the graceful curve as opposed to the straight line. Meissonnier is represented here by an exquisite glass top table which is as fine an example of the carving of this period as there is in existence. Boucher became inspector of the Gobelins' tapestry factory, and during the time he held the position, his art dominated the Gobelins. His work shows great delicacy of color and grace of style. To Boucher is due the introduction of the oval medallion or frame which has never since his day been entirely absent from French decorative art. Boucher is represented in the Huntington room by a fourfold Rose du Barry screen, the tapestry of which was designed by him. Another noted man of the time, whose work is to be found here, is Jean Jacques Caffieri (1723-1792). Caffieri was the greatest maker of ormolu metal mounts and his work appears on much of the finest furniture of the Louis XV period.

## CHAPTER VIII

FURNITURE COLLECTION IN THE WORCESTER,  
MASSACHUSETTES ART MUSEUM

By MRS. WALTER S. SIPLE

The Worcester Art Museum collection of furniture consists chiefly of Italian Renaissance and Early American pieces. No attempt has been made to form a representative group of all types and periods. In fact, most of the objects have been acquired to supplement the main collection of paintings of the Italian and American schools.

Though the actual number of pieces of furniture in the museum is small, no adequate idea of the scope of the collection can be given in a brief article. It has seemed best, therefore, to select several typical examples and to discuss them somewhat in detail.

**French  
Furniture**

The earliest is a French Fifteenth century carved mantel, a piece of architectural ornament made in a period which has bequeathed to us very little free-standing furniture. The design of this mantel is both interesting and unusual. There is no trace of the linenfold or pointed arch motifs which we associate with the earlier Gothic. We find, instead, the naturalistic foliate ornament which crept into the stone-carving of the flamboyant Fifteenth century style. Here it is a restrained naturalism, kept well within the bounds of appropriate ornament. The entwined stems of the grape vine and the alert birds among the leaves remind us of the border patterns of Italian brocatelles of the same period. Harmony of line character prevails throughout the design and is particularly noticeable in the spiral formation of the columns and the twisted stems of the vines above.

**Renaissance  
Pieces**

Among the Renaissance cassoni in the museum is one of carved walnut with traces of delicate gilding. In its beauty of proportion, its unbroken horizontal lines, and its wealth of classical detail, it represents an excellent Renaissance type. Nude figures, carved in high relief in the panels, are surrounded by wavy bands of foliate ornament which recall the beauty of Roman work. Above and be-

low are the acanthus, egg and dart and other Greek mouldings. All of these reminiscent motifs are united with that supreme sense of order and that masterly craftsmanship which distinguishes the work of the High Renaissance in Italy.

### **Fifteenth Century English Chair**

An English chair of a century later—about 1690—shows something of the Gothic spirit still lingering in the north. But it is the Gothic spirit clothed in the red lacquer of the Orient and decorated with Chinese designs in gold (restored). One of the most beautiful features of this chair is the slightly tapering back. It is of beechwood, with cane seat and back, and the legs are of the scroll-footed Spanish type. Over the seat is a soft detachable cushion of dark red velvet (also restored).

### **Hepplewhite Furniture**

A settee, table, and two chairs—the gift of Mrs. J. A. Ropes—represent the mood of the Eighteenth century. They are of painted satinwood, and are true to the English Hepplewhite type with its shield backs, delicately tapering legs, restraint of line and apparent fragility.

### **Early American Pieces**

In contrast to this sophisticated group the museum collection contains a number of severely plain Early American pieces of about the same period. There is as much difference between an American highboy of the mid-Eighteenth century and an English highboy of the same time as there is between a painting by Robert Feke and one by Gainsborough. And there is, both in the paintings and the furniture, a certain charm due to the simplicity of the provincial work.

One good example of this severe American style is a highboy which came to the museum from the estate of its chief benefactor, the late Stephen Salisbury III. It is of mahogany, a fact which tends to place it after the first quarter of the Eighteenth century. This piece achieves great beauty and dignity by virtue of its straight lines and unworried surfaces. Its prevailing angularity is relieved by the curves of the hood top and the cabriole legs.

## Nineteenth Century Exhibit

In comparison with this highboy the later types of Nineteenth century furniture seem heavy and lacking in distinction, but, in all probability, we have not yet acquired sufficient perspective on the period just passed to appreciate it to the full. At any rate, we may be certain that it was not marked by the complete debasement of taste in the arts. Our own time holds great promise in this field. The Worcester Museum has not yet begun to collect types of modern furniture but such a step is contemplated in the near future. Of course, by modern furniture we mean new forms, not reproductions of earlier periods. The present vogue of period copies is seriously retarding the development of modern design.

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### CHAPTER IX

#### FURNITURE COLLECTION AT THE ISABELLA STEWART GARDNER MUSEUM, FENWAY COURT, BOSTON, MASS.

By MORRIS CARTER  
Director

Although in her later years Mrs. Gardner did buy pictures somewhat after the manner of a systematic collector who desires that the work of great masters shall be represented in his collection, this was not in general her guiding principle; she bought things of beauty to furnish her house and to make it an ensemble of beauty. Therefore, at Fenway Court there is no systematic collection of furniture, but there are many interesting pieces, covering a wide field, from a Roman marble throne to an Early American highboy; from Gothic chests to Japanese altar tables. There are three Spanish *varguenos*, one of them quite simple, and another bearing the crowned initials of Ferdinand and Isabella, and there are Castilian sacristy benches of the Seventeenth century. There is a charming little William and Mary inlaid corner writing desk, and an armchair, said to have belonged to Charles II; this chair belonged to a set purchased by Mr. and Mrs. James T. Fields on the recommendation of Charles Dickens. There are several Gothic credences and there are intricate Flemish cupboards. However, as might be expected, the furniture is for the most part Italian, and shows interestingly the

development from the Sixteenth to the Nineteenth century. The collection contains several refectory tables, the earliest of the type assigned to Venice in the early Sixteenth century; there are also large oval and octagonal tables and several of the small ones which are called Bolognese of the Seventeenth century. Then there are chairs of great variety, the carved folding chairs, known as Dante chairs, small Central Italian chairs of the later Sixteenth century, with upholstered seats and openwork backs, massive armchairs, inlaid and carved, either all of wood or with back and seat of leather or brocade. One set of chairs shows the influence of the Hepplewhite style, another set shows the French influence of the Louis XV period, and Venetian painted furniture is well represented. There are three marriage chests, or cassoni, as well as panels from at least three others. One of the chests is particularly interesting; it is Sienese, and is decorated with a relief in gilded gesso and bears the arms of two very distinguished families, the Piccolomini and Todeschini.

At Fenway Court, all the arts are represented and in the case of furniture certainly, the representation is sufficiently extensive and varied to offer much of interest to the student.

## CHAPTER X

### FURNITURE COLLECTION IN THE MUSEUM OF FINE ARTS, BOSTON, MASS.

(Compilers' note—Owing to the work incidental to the installation of exhibits in a new building, a complete review of this very interesting and valuable exhibit could not be had for this edition of the Manual. Mr. Edward J. Hipkiss, Curator, Department of Decorative Arts, in the absence of such a review, lists the furniture exhibit in the museum briefly as to periods and nationalities represented.)

American, Seventeenth to Nineteenth centuries.

Dutch, Seventeenth and Eighteenth centuries.

English, Fifteenth to Nineteenth centuries.

French, Louis XIV, Louis XV, Louis XVI and Empire.

Italian, Fourteenth to Eighteenth centuries.

Spanish, Sixteenth and Seventeenth centuries.

Swiss, a few pieces.



## PART XIII

*Code of Selling Ethics*

*Furniture Journals and Publications*

*National and Local Retail*

*Furniture Associations*

*Wholesale Furniture Market Centers*



# Code of Selling Ethics

## PRINCIPLES OF BUSINESS CONDUCT AND CODE OF ETHICS FOR THE FURNITURE INDUSTRY

The function of business is to provide for the material needs of mankind, and to increase the wealth of the world and the value and happiness of life. In order to perform its function it must offer a sufficient opportunity for gain to compensate individuals who assume its risks, but the motives which lead individuals to engage in business are not to be confused with the function of business itself. When business enterprise is successfully carried on with constant and efficient endeavor to reduce the cost of production and distribution, to improve the quality of its products and to give fair treatment to customers, capital, management and labor, it renders public service of the highest value.

We believe the expression of principles drawn from these fundamental truths will furnish practical guides for the conduct of business as a whole and for each individual enterprise.

### Principles

I. The foundation of business is confidence, which springs from integrity, fair dealing, efficient service and mutual benefit.

II. The reward of business for service rendered is a fair profit plus a safe reserve, commensurate with risks involved and foresight exercised.

III. Equitable consideration is due in business alike to capital, management, employes and the public.

IV. Knowledge—thorough and specific—and unceasing study of the facts and forces affecting a business enterprise are essential to a lasting individual success and to efficient service to the public.

V. Permanency and continuity of service are basic aims of business, that knowledge gained may be fully utilized, confidence established and efficiency increased.

VI. Obligations to itself and society prompt business unceasingly to strive toward continuity of operation, bettering conditions of employment, and increasing the efficiency and opportunities of individual employes.

VII. Contracts and undertakings, written or oral, are to be performed in letter and in spirit. Changed condi-

tions do not justify their cancellation without mutual consent.

VIII. Representation of goods and services should be truthfully made and scrupulously fulfilled.

IX. Waste in any form—of capital, labor, services, materials or natural resources—is intolerable and constant effort will be made toward its elimination.

X. Excesses of every nature—inflation of credit, over-expansion, over-buying, over-stimulation of sales—which create artificial conditions and produce crises and depressions are condemned.

XI. Unfair competition, embracing all acts characterized by bad faith, deception, fraud or oppression, including commercial bribery, is wasteful, despicable and a public wrong. Business will rely for its success on the excellence of its own service.

XII. Controversies will, where possible, be adjusted by voluntary agreement or impartial arbitration.

XIII. Corporate forms do not absolve from or alter the moral obligations of individuals. Responsibilities will be as courageously and conscientiously discharged by those acting in representative capacities as when acting for themselves.

XIV. Lawful co-operation among business men and in useful business organizations in support of these principles of business conduct is commended.

XV. Business should render restrictive legislation unnecessary through so conducting itself as to deserve and inspire public confidence.

## Code of Ethics

**Truth.** It shall be considered unethical to misrepresent the product of factories by manufacturers or wholesalers in the distribution to the dealers, or by the dealers in the distribution to the public by making false or ambiguous statements through print or otherwise.

**Return of Merchandise.** It shall be considered unethical to make an arbitrary adjustment or settlement of difference not in accord with written or verbal agreement.

**Discounts.** It shall be considered unethical to deduct cash discounts unless payment is made within discount time specified.

**Cancellations.** It shall be considered unethical on the part of the buyer or seller to cancel an order taken in

good faith, without good and sufficient cause and only then by mutual consent. This shall also apply to hold orders. The practice of hold orders should be discounted.

**Gratuities.** It shall be considered unethical for a manufacturer or wholesaler to give an employe of a retailer gratuity or commission for the advancement or sale of merchandise.

**Employe Sales by Manufacturers.** It shall be considered unethical for a manufacturer or wholesaler to sell his merchandise to any excepting the furniture dealer or his own employes for personal use.

**Wholesale Prices.** It shall be considered unethical for the manufacturer, wholesaler or dealer to disclose the wholesale price of furniture.

**Exhibition Rooms.** It shall be considered unethical for a dealer to request the admission of the consumer to an exhibition showroom or factory either by letter or introduction, card or personal accompaniment.

**Exclusive Rights.** It shall be considered unethical for a manufacturer in any way to violate exclusive arrangements made with the dealer, and it shall be considered unethical on the part of the dealer to attempt to circumvent the exclusive arrangement by soliciting the assistance of other dealers outside of the affected territory, and it shall be considered unethical for the outside dealers to become a party to any such arrangement.

**Donations.** It shall be considered unethical for a retail dealer to solicit or request the manufacturers for donations or subscriptions to merchandise campaigns that are purely for the advancement of the dealer's personal interest.

**Invoicing.** It shall be considered unethical for a dealer to request of a manufacturer to furnish a false invoice covering any shipment of goods, or to furnish any blank invoices.

## Code

### Interpretations

**Return of Merchandise.** Under this heading would be considered the arbitrary return of merchandise without the consent of the shipper. Merchandise should be held subject to the order of the shipper until such time as an adjustment of the matter is obtained.

**Discounts.** Care should be exercised by both buyer and

seller that the discount terms are clearly and definitely stated at the time of purchase.

**Courtesy Sales by Manufacturers.** It is recommended that where the manufacturer desires to extend courtesies of this character that he communicate with the local dealer, who should co-operate with the manufacturer in assisting him to extend the courtesy employe sales. Employe sales shall at all times be confined to their own personal use, and the responsibility shall rest upon the manufacturer or jobber that such purchases are truthfully made for their own personal use.

**Wholesale Prices.** Any matter going through the mails in which wholesale price is given should be enclosed in an envelope, and extreme care should be exercised by manufacturers and wholesalers in the distribution of their catalogs and price lists.

**Donations.** This is not to be interpreted as applying to solicitations for co-operation for the development of any movement for the general good of the furniture industry.

## Definitions

**The Wholesaler.** An individual or corporation operating for the purpose of distributing the product of the manufacturer to the retailer.

**The Retailer.** A retail dealer shall be taken to mean one who owns or controls proper facilities for handling new furniture and who keeps regularly on hand a stock sufficient to meet the demands of the public in his community as far as his invested capital will warrant.

**The Manufacturer.** An individual or corporation operating a factory for the manufacturer of furniture or other home furnishings (stoves, carpets, etc.) for distribution at wholesale to the retail dealer.

**Dealer-Manufacturer.** An individual or corporation whose business is primarily that of a dealer, as above described, and who also operates as a manufacturer.

**Manufacturer-Dealer.** An individual or corporation who, while primarily that of a manufacturer, as above described, and who also operates as a retailer in conformity with the retailer, as above described.

**Factory or Factory Showroom**—A building in which an exclusive line of furniture is manufactured or exhibited.

**Exhibition Building.** A building in which two or more lines of furniture are exhibited.

## Furniture Terms

**Imitation** (insert the wood). Furniture designated as imitation (insert the wood) shall be of the finish designated on any suitable hardwood.

**Combination** (insert the wood). Furniture designated as combination (insert the wood) shall have all exposed surfaces of (insert the wood) solid or plywood in combination with any other suitable hardwood.

**Genuine** (insert the wood). Furniture designated as genuine (insert the wood) shall have all exposed surfaces both solid parts and plywood, of the kind of wood designated.

**Solid** (insert the wood). Furniture designated as solid (insert the wood) shall have all exposed surfaces of solid wood of the kind designated.

**Explanation.** Nothing in these specifications shall prohibit the use of the terms "solid" or "genuine" where other cabinet woods are used for decorative purposes, where the evident intent is to add to the artistic value and not for the purpose of cheapening the cost of production.

The term "exposed surfaces" shall mean those parts of a piece of furniture which are exposed to view when the piece is placed in the generally accepted position for use in the home.

The use of birch or other wood, in rocker sweeps or runners shall not affect the definition of the terms "solid" or "genuine" where applied to rocking chairs.

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## *Furniture Journals and Publications*

### THEIR PUBLISHERS, EDITORS, CIRCULATIONS AND CHARACTERS

Total circulation figures from American Newspaper Annual and Directory, published by N. W. Ayer & Sons, Philadelphia, Pa. Circulations marked "A. B. C." have been verified by the Audit Bureau of Circulations, an organization maintained by publishers, advertisers and advertising agencies for the assurance of correct circulation statements.

**American Carpet and Upholstery Journal**—(monthly); Published by Trades Publishing Co., 1050 Drexel Bldg., Fifth and Chestnut Sts., Philadelphia, Pa.; Established, 1883; Subscription, \$2.00 yearly.

**Arts and Decoration**—(monthly); Published by Eltinge F. Warner, 45 West Forty-Fifth St., New York City, N. Y.; Edited by Mary Fanton Roberts; Member A. B. C.; Established, 1908; Subscription, \$6.00 yearly; Total circulation 27,224, divided as follows: New England 1,720, Middle Atlantic 7,838, South Atlantic 2,021, East North Atlantic 4,193, East South Atlantic 563, West North Central 1,494, West South Central 1,269, Mountain 567, Pacific 2,668, Alaska and U. S. Poss., 149, Canada 496, Foreign 376, Miscellaneous 81, Unclassified 3,789.

**Carpet and Rug News**—(monthly); Published by Federated Business Publications, Inc., 420 Lexington Ave., New York City, N. Y.; Edited by Edward Lyman Bill; Established 1916; Total circulation 3,000 publisher's statement.

**The Carpet and Rug World**—(monthly); Published by T. A. Cawthra & Co., Inc., 381 Fourth Ave., New York City, N. Y.; Edited by James P. Rome; Established 1917; Subscription \$2.00 yearly; Total circulation 3,000.

**Carpet and Upholstery Trade Review**—(semi-monthly); Published by Edward H. Bailey, Review Publishing Co., 31 East Seventeenth St., New York City, N. Y.; Established 1870; Subscription \$4.00 yearly.

**Decorative Furnisher**—(monthly); Published by T. A. Cawthra & Co., Inc., 381 Fourth Ave., New York City, N. Y.; Edited by James P. Rome; Established 1901; Subscription \$3.00; Total circulation 5,000 sworn.

**Decorative Furnisher Directory and Buyer's Guide**—(annually, May); Published by T. A. Cawthra & Co., Inc., 381 Fourth Ave., New York City, N. Y.; Established 1913, Subscription \$.50; Total circulation 5,200.

**Draperies and Decorative Fabrics**—(monthly); Published at 420 Lexington, New York City, N. Y.

**Furniture Advertiser**—(monthly); Published by Rockwell Publishing Co., 508 So. Dearborn St., Chicago, Ill.; Established 1916; Subscription free; Total circulation 20,000.

**Furniture Age**—(monthly); Published by H. O. Reno Co., 2225-39 Herndon St., Chicago, Ill.; Edited by J. A. Gary; Member A. B. C.; Established 1921; Subscription \$3.00, foreign countries \$5.00 yearly; Total Circulation 7,000, divided as follows: New England 374, Middle Atlantic 933, South Atlantic 559, East North Central 1,664, East South Central 229, West North Central 495, West South Central 258, Mountain 158, Pacific 538, Canada 12, Foreign 8, Miscellaneous 61, Unclassified 1,719.

**Furniture & Stove Merchandiser**—(monthly); Published at 216 Locust St., Evansville, Ind.; Total circulation 10,000 guaranteed.

**Furniture Blue Book**—(monthly); Published by Blue Book Publishing Co., 516 Murray Bldg., Grand Rapids, Mich.; Edited by A. P. Johnson; Established 1918; Subscription free; Total Circulation 11,871 sworn, divided as follows: New England 700; North Atlantic 2,510; Southeastern 1,043; Southwestern 1,815; Middle 5,014; Western 708; Foreign 81.

**Furniture Buyer and Decorator**—(weekly); Published by Wm.



P. Symonds, 36 Gold St., New York City, N. Y.; Edited by Wm. P. Symonds; Established 1870; Subscription \$2.00 yearly; Total circulation, 5,000 sworn.

**Furniture Index**—(monthly); Published by Furniture Publishing Corp., Fourth and Clinton Sts., Jamestown, N. Y.; Edited by H. W. Patterson; Member A. B. C.; Established 1900; Subscription \$2.00; Total circulation 7,250 publisher's statement, divided as follows: New England 717; Middle Atlantic 2,522; South Atlantic 426; East North Central 1,569; East South Central 71; West North Central 212; West South Central 102; Mountain States 28; Pacific States 146; Canada 27; Miscellaneous and Foreign 11; Unclassified 1,419.

**Furniture Journal**—(monthly); Published by Trade Periodical Co., 666 Lake Shore Drive, Chicago, Ill.; Edited by Lee S. Arthur; Member A. B. C.; Established 1888; Subscription \$3.00; Total circulation 4,347, divided as follows: New England 147, Middle Atlantic 828, South Atlantic 366, East North Central 1,796, East South Central 168, West North Central 480, West South Central 274, Mountain States 69, Pacific States 122, Canada 23, Miscellaneous and Foreign 74.

**The Furniture Journal of Canada**—(monthly); Published by The Uren Publishing Co., 545-549 King St., W., Toronto 2, Ont.; Edited by A. E. Uren; Established 1894; Subscription \$1.50 Canada, \$2.00 outside; Total circulation 1,250.

**Furniture Manufacturer**—(monthly); Published by Periodical Publishing Co., 200 Division Ave., N., Grand Rapids, Mich.; Edited by Winston V. Morrow; Member A. B. C.; Established 1880; Subscription \$3.00; Total circulation 3,843, divided as follows: New England 214, Middle Atlantic 591, South Atlantic 220, East North Central 1,125, East South Central 107, West North Central 324, West South Central 94, Mountain States 52, Pacific States 265, Canada 89, Foreign 65, Unclassified 697.

**Furniture News**—(monthly); Published by Furniture Gazette Publishing Co., 511 Locust St., St. Louis, Mo.; Edited by Richard Dallam; Established 1889; Subscription \$2.00 yearly; Total circulation 3,000.

**Furniture Record**—(monthly); Published by Periodical Publishing Co., 200 Division Ave., N., Grand Rapids, Mich.; Edited by Eagle Freshwater; Member A. B. C.; Established 1900; Subscription \$3.00; Total circulation 7,449, divided as follows: New England 618, Middle Atlantic 1,521, South Atlantic 737, East North Central 1,815, East South Central 262, West North Central 470, West South Central 451, Mountain States 127, Pacific States 318, Canada 148, Foreign 108, Unclassified 874.

**Furniture Reporter**—(monthly); Published by Edward L. Berg Co., 180 New Montgomery St., San Francisco, Cal.; Edited by Edward L. Berg; Established 1919; Subscription \$2.00; Total circulation 3,100 publisher's statement.

**The Furniture Trade Review**—(monthly); Published by Edward H. Bailey, 31 East 17th St., New York City, N. Y.; Established 1870; Subscription \$4.00.

**Furniture Warehouseman**—(monthly); Published by Furniture Warehouseman, 4651 Cottage Grove Ave., Chicago, Ill.; Established 1920; Subscription \$5.00; Total circulation 883.

**Furniture World**—(weekly); Published by Towse Publishing Co., 15 W. 38th St., New York City, N. Y.; Edited by G. H.

**Langworthy**; Established 1895; Subscription \$3.00; Total circulation 6,300 publisher's statement.

**Good Furniture Magazine**—(monthly); Published by The Dean-Hicks Co., 217 Ellsworth Ave., Grand Rapids, Mich.; Edited by Henry W. Frohne; Member A. B. P.; Established 1914; Subscription \$5.00 yearly; Total circulation 5,507, divided as follows: Newsdealers 401, New England 329, Middle Atlantic 1,541, South Atlantic 281, East North Central 1,270, East South Central 105, West North Central 292, West South Central 192, Mountain States 73, Pacific States 470, Canada 117, Miscellaneous and Foreign 436.

**Hand Book of the Allied Interior Decorative Trades**—(annually, April); Published by Clifford & Lawton, 373 Fourth Ave., New York City, N. Y.; Established 1921; Subscription \$1.00; Total circulation 7,000.

**Interior Decorator**—(semi-monthly); Published by Edward H. Bailey, 31 East 17th St., New York City, N. Y.; Established 1870; Subscription \$4.00.

**Ohio Valley Furniture Journal**—(monthly); Published by Fathauer-Feuss Co., Thomas Bldg., 5th and Main Sts., Cincinnati, Ohio; Edited by Jack Appleton; Established 1923; Subscription \$1.00 yearly; Total circulation 4,800.

**The Pacific Northwest Furniture Dealer**—(monthly); Published by Retail Furniture Association of Washington, 315 Crary Bldg., Seattle, Wash.; Edited by T. L. Monson; Subscription \$1.00.

**Retail Furniture Selling**—(monthly); Published by Retail Furniture Selling, Inc., 7 So. Dearborn St., Chicago, Ill.; Edited by K. A. Ford; Established 1924; Subscription \$1.00; Total circulation 20,000.

**The Rug Trade Review**—(semi-monthly); Published by Edward H. Bailey, Review Publishing Co., 31 East Seventeenth St., New York City, N. Y.; Established 1870; Subscription \$4.00.

**Southern Furniture Journal**—(monthly); Published by The Southern Furniture Journal Co., High Point, N. C.; Edited by Hugh Murrill, Jr.; Established 1901; Subscription \$1.00; Total circulation 3,435.

**Southern Furniture Market News**—(monthly); Published by Southern Furniture Market Association, High Point, N. C.; Edited by Harold C. Bennett; Established 1922; Subscription \$1.00; Total circulation 6,396, divided as follows: New England 276; North Atlantic 835; Southeastern 1,852; Southwestern 1,738; Middle 824; Western 239; Unclassified 632.

**Twin City Furniture Digest**—(monthly); Published by Grant Williams, 311 Fawkes Bldg., Minneapolis, Minn.; Edited by Grant Williams; Established 1921; Subscription \$2.00 yearly; Total circulation 2,775.

**Upholsterer and Interior Decorator**—(monthly); Published by Clifford & Lawton; Edited by C. R. Clifford; Established 1888; Subscription \$3.00; Total circulation 5,606 publisher's statement.

**Veneers**—(monthly); Published by S. H. Smith Co., 701 Wulsin Bldg., Indianapolis, Ind.; Edited by H. W. Marsh; Established 1907; Subscription \$1.00 yearly; Total circulation 2,803, divided as follows: New England 104, North Atlantic 401, Southeastern 239, Southwestern 229, Middle 742, Western 142, Canada 63, Foreign 173 Miscellaneous 710.

**Window Shade and Drapery Journal**—(monthly); Published by National Association of Window Shade Makers, 307 North Michigan Ave., Chicago., Ill.; Edited by L. M. Forkell; Established 1923; Subscription \$3.00; Total circulation 2,100 publisher's statement.

## *National and Local Retail Furniture Associations*

**Alabama State Furniture Dealers' Association**—Secretary, Mrs. Mable Leake, 200 Clark Building, Birmingham, Ala.

**Altoona Retail Furniture Association**—Secretary, H. E. Westbrook, W. S. Arrons Company, Altoona, Pa.

**Associated Furniture Dealers of New York**—Manager, James B. McMahon, Jr., 32 Union Square, New York.

**Atlanta Retail Merchants' Association**—Executive Secretary, C. V. Hohenstein, 305 Connolly Bldg., Atlanta, Ga.

**Arkansas Retail Furniture Association**—Secretary, Roy M. Laseter, 823 West 7th Street, Little Rock, Ark.

**Birmingham Furniture Dealers' Association of the Chamber of Commerce**—Secretary, E. C. Hufham, 2015 Fifth Avenue, Birmingham, Ala.

**Buffalo Retail Furniture Association**—Executive Secretary, E. C. Spencer, 485 Elmwood Avenue, Buffalo, N. Y.

**Dayton Retail Furniture Dealers' Association**—Secretary, A. O. Freehafer, Ludlow Building, Dayton, Ohio.

**Erie Retail Furniture Dealers' Association**—James K. Shields, Chamber of Commerce, Erie, Pa.

**Evansville Furniture Manufacturers' Association**—President, C. M. Frisse, Room 16 Furniture Building, Evansville, Ind.

**Fox River Retail Furniture Dealers' Association**—Secretary-Treasurer, H. G. Kittner, Appleton, Wis.

**The Furniture Buyers' Club of Topeka**—Secretary-Treasurer, W. Warren Rutter, 830-832 N. Kansas Avenue, Topeka, Kan.

**Furniture Club of America**—Secretary, Geo. W. Powell, 666 Lake Shore Drive, Chicago, Ill.

**Furniture Dealers' Association of Charlotte**—Secretary, O. S. Perry, 15 South College Street, Charlotte, N. C.

**Federation of Nebraska Retailers**—General Secretary, C. W. Watson, 140 S. 13th Street, Lincoln, Neb.

**Furniture Salesmen's Club, The**—Secretary-Treasurer, C. B. Hamilton, 516 Michigan Trust Building, Grand Rapids, Mich.

**Furniture Salesmen's Club of Wisconsin, The**—307 East Water Street, Milwaukee, Wis.

**Furniture Upholstery and Allied Trades Association**—President-Secretary, Nat Ottensosen, 235 Fifth Avenue, New York City, N. Y.

**Grand Rapids Furniture Manufacturers' Association**—Secretary, Francis D. Campau, Pantlind Hotel, Grand Rapids, Mich.

**Grand Rapids Market Association**—Secretary-Treasurer, C. B. Hamilton, 516 Michigan Trust Building, Grand Rapids, Mich.

**Grand Rapids Retail Furniture Association**—Secretary-Treasurer, Dennis Shallenberger, Winegar Furniture Company, Grand Rapids, Mich.

**Georgia Retail Furniture Association**—Secretary, J. W. Johnson, 117 Whitehall, Atlanta, Ga.

**Harrisburg Furniture Dealers' Association**—Secretary-Treasurer, W. L. Garland, 1217 Third Street, Harrisburg, Pa.

**Home Furnishers' Association of Massachusetts, The**—Secretary-Treasurer, M. H. Morris, 139 East Street, South, Indianapolis, Ind.

**Home Furnishers' Association, Inc. of Philadelphia, The**—Secretary, C. M. Swearer, 11th and Filbert Streets, Philadelphia, Pa.

**Illinois Retail Furniture Association**—Secretary-Treasurer, Frederick L. Davies, 35 So. Dearborn Street, Chicago, Ill.

**Indianapolis Furniture Manufacturers' Association**—Secretary-Treasurer, M. H. Morris, 139 East Street, South, Indianapolis, Ind.

**Indiana Retail Furniture Dealers' Association**—Secretary, Frank D. Davy, 903 City Trust Building, Indianapolis, Ind.

**Iowa Retail Furniture Dealers' Association**—Secretary-Treasurer, Floyd G. Cooper, Woodward, Iowa.

**Jacksonville Retail Furniture Dealers' Association**—Secretary, C. P. Pridgen, Care Rhoades, Futch, Collins Company, Jacksonville, Fla.

**Jamestown Furniture Market Association**—Secretary-Treasurer, H. G. King, 110 East 4th Street, Jamestown, N. Y.

**Kansas City Retail Furniture Association**—Secretary, D. A. Nugent, 1 New England Building, Kansas City, Mo.

**Long Beach Unit, Retail Furniture Association of California, Inc.**—Secretary, Bert Johnson, Chamber of Commerce, Long Beach, Cal.

**Louisville Home Furnishers' Association**—109 Todd Building, Louisville, Ky.

**Metal Bed & Spring Bed Institute**—Secretary, Allen E. Conner, 30 Church Street, New York City, N. Y.

**Metropolitan Furniture Merchants' Association**—Secretary and Business Manager, Henry Nerge, 304 West 87th Street, New York City, N. Y.

**Milwaukee Furniture Manufacturers' and Jobbers' Association**—Max Schade, Meinecke Manufacturing Company, Milwaukee, Wis.

**Milwaukee Retail Furniture Dealers' Association**—Secretary, H. H. Ashworth, 49 East Wells Street, Milwaukee, Wis.

**National Alliance of Furniture Manufacturers**—Secretary, Scott Baker, Jamestown, N. Y.

**National Association of Upholstered Furniture Manufacturers**—Executive Secretary, Ralph F. Windoes, 624 South Michigan Avenue, Chicago, Ill.

**National Retail Furniture Association**—Roscoe Rau, 666 Lake Shore Drive, Chicago.

**National Wholesale Floor Covering Association, The**—Secretary, James T. Fernley, 505 Arch Street, Philadelphia, Pa.

**National Wholesale Furniture Association, The**—Secretary-Treasurer, George A. Fernley, 505 Arch Street, Philadelphia, Pa.

**New Jersey Association of Furniture Dealers, Inc.**—Secretary-Treasurer, Lewis Ridgeway, 60 East 34th Street, New York City, N. Y.

**New York Furniture Exchange Association, Inc.**—Secretary, Walter M. Engel, 469-479 Seventh Avenue, New York City, N. Y.

**Northwest Retail Furniture Association**—Secretary-Treasurer, Grant Williams, 311 Fawkes Building, Minneapolis, Minn.

**Ohio Valley Retail Furniture Association**—Secretary, George H. Bricker, 175 South High Street, Columbus, Ohio.

**Omaha Retailers' Association**—Secretary, James W. Metcalf, 203 Tiffany Building, Omaha, Neb.

**Retail Furniture Association of California, Inc.**—Secretary, E. C. Mitchell, 229 A. G. Bartlett Building, Los Angeles, Cal.

**Retail Furniture Association of Chicago**—Secretary, Frederick L. Davies, 35 South Dearborn Street, Chicago, Ill.

**Retail Furniture Association of Columbus**—Secretary-Treasurer, George H. Bricker, Citizens Bank Building, Columbus, Ohio.

**Retail Furniture Association of Baltimore**—Secretary, J. W. Mehling, 22 Light Street, Baltimore, Md.

**Retail Furniture Association of Greater Cincinnati**—Secretary, Maurice H. Shott, 220-21-22 Southern Railway Building, Cincinnati, Ohio.

**Retail Furniture Association of Johnstown**—H. C. Robel, 60 Murdock Street, Johnstown, Pa.

**Retail Furniture Association of Southwestern New York and Northwestern Pennsylvania**—Secretary, L. W. Brainard, Field & Wright Co., Jamestown, N. Y.

**Retail Furniture Dealers' Association of St. Louis**—Secretary, O. G. Kirchner, Walker Armstrong House Furnishings Co., 1306 Olive Street, St. Louis, Mo.

**Retail Furniture Dealers' Association of St. Paul**—Secretary, H. S. Johnson, Johnson Furniture Co., St. Paul, Minn.

**Retail Furniture Association of Texas, Inc.**—Secretary, J. O. Yeargan, 1609-11 Elm Street, Dallas, Texas.

**Retail Furniture Association of Tulsa**—Secretary-Treasurer, R. S. Spangler, 116 South Boston, Tulsa, Okla.

**Retail Furniture Association of Washington**—Executive Secretary, G. S. Costello, Crary Building, Seattle, Wash.

**Retail Furniture Club of Michigan**—Secretary, William B. Wreford, 1601 Ford Building, Detroit, Mich.

**Retail Furniture Dealers' Association of Pittsburgh**—Secretary, M. C. Hutchison, Boggs & Buhl, Pittsburgh, Pa.

**Retail Furniture Dealers' Association of Tennessee**—Secretary, Stuart Towe, Chamber of Commerce, Nashville, Tenn.

**Richmond Furniture Dealers' Association**—Secretary, D. D. Eanos, Roundtree Corporation, Richmond, Va.

**Rochester Retail Furniture Dealers' Association**—Secretary, J. E. Scheuerman, Weis & Fisher Co., 50 State Street, Rochester, N. Y.

**Rockford Furniture Manufacturers' Association**—Secretary, Ralph Nelson, Mechanics Furniture Co., Rockford, Ill.

**San Diego Unit, Retail Furniture Association of California, Inc.**—Secretary, J. Perry Thomas, 923 Sixth Street, San Diego, Cal.

**San Francisco Bay Unit, Retail Furniture Dealers' Association of California, Inc.**—Secretary, E. C. Mitchell, 230 A. G. Bartlett Building, Los Angeles, Cal.

**San Francisco Bay Unit Retail Furniture Dealers' Association of California, Inc.**—Secretary, Frank B. Runyan, 180 New Montgomery Street, San Francisco, Cal.

**Saginaw Retail Furniture Club**—Secretary-Treasurer, George Eagle, Saginaw, Mich.

**Southern Furniture Manufacturers' Association**—Secretary-Treasurer, J. T. Ryan, High Point, N. C.

**Southern Furniture Market Association**—Chairman of Executive Committee, Fred N. Tate, Exposition Building, High Point, N. C.

**Southern Market Salesmen's Association**—Secretary-Treasurer, C. D. Guess, Waynesboro, Va.

**Southern Office, Retail Furniture Association of California, Inc.**—E. C. Mitchell, 230 A. G. Bartlett Building, Los Angeles, Cal.

**Southern Retail Furniture Association**—Secretary, John A. Gilmore, Charlottesville, Va.

**St. Louis Furniture Board of Trade**—Secretary, H. S. Tuttle, 511 Locust Street, St. Louis, Mo.

**The Toledo Retail Furniture Dealers' Protective Association**—Secretary, J. H. Combs, 230 Superior Street, Toledo, Ohio.

**Wilmington Retail Furniture Association**—Secretary, Henry Fenberg, 806-808 King Street, Wilmington, Del.

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## *Wholesale Furniture Market Centers*

Boston, Mass.

Chicago, Ill.

Cincinnati, O.

Dallas, Tex.

Evansville, Ind.

Gardner, Mass.

Grand Rapids, Mich.

High Point, N. C.

Indianapolis, Ind.

Jamestown, N. Y.

Los Angeles, Cal.

Louisville, Ky.

Minneapolis, Minn.

New Orleans, La.

New York, N. Y.

Rockford, Ill.

St. Louis, Mo.

San Francisco, Cal.

Seattle, Wash.

Tacoma, Wash.

## PART XIV

*Furniture Craftsmen, Architects and  
Artisans to the Twentieth Cen-  
tury with Brief Biography*





# *Furniture Craftsmen, Architects and Artisans to the Twentieth Century with Brief Biography*

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**Adam Brothers**—England. John, 1721-1792; Robert, 1728-1792; James, 1730-1794; William, 1739-1822. James and Robert are the two outstanding brothers. In general, James was an architect, and Robert designed furniture and interior decorations suitable for the houses built by himself and brothers. See page 209.

**Agnolo, Baccio d'**—Italy, 1460-1563. Executed inlaid woodwork or intarsia in stalls of the church of St. Maria Novella in Florence. Carved woodwork of the high altar of church of the Annunziata. Carved large frame for a picture in the great hall of the palace at Florence.

**Agnolo, Domenico d'**—Italy, Sixteenth century. Son of Baccio d' Agnolo. Carver in wood. Reputed to have been superior to his brother, Giuliano d' Agnolo, in this line of work.

**Agnolo, Giuliano d'**—Italy, Sixteenth century. Son of Baccio d' Agnolo. Carver of frames and woodwork. Executed for Filippo Strozzi Giuliano a couch in walnut wood. Executed stallwork of walnut wood and the tabernacle with two angels that stood beside it, for the Episcopal church of Arezzo.

**Ambrogio, Giovanni**—Italy, Seventeenth century. Celebrated turner of Milan.

**Annot**—England, Nineteenth century.

**Anthony, Mark**—England, Seventeenth century. Cabinet-maker.

**Ards, W.**—Flanders, Fifteenth century. Carved roof of Hotel de Ville at Malines.

**Armand, Jean**—France, Eighteenth century. Marquetry.

**Asinelis, Antonio**—Italy, Sixteenth century.

**Atlee, William**—United States, (Philadelphia), Eighteenth century. Upholsterer and dealer in furniture.

**Aubiche, Jacques d'**—France, Eighteenth century. Faubourg St. Antoine.

**Axton, Thomas**—England, Seventeenth century. Chief arras-maker in the Great Wardrobe.

**Bachelier of Toulouse**—France, Sixteenth century. Made carved wood furniture in walnut, with grotesque imagery.

**Baerze, Jacques de**—Flanders, Fourteenth century. Carved portable "retables" filled with figures, painted and gilded, ordered by Philippe le Hardi for Carthusian church of Champmol-les-Dijon, 1391. Preserved in museum of Dijon.

**Baker**—England, Eighteenth century. Flower painter. Painted coaches and shop signs.

**Balthazar, Lieutand**—France, Eighteenth century. Carved figure work, preserved in Museum of Dijon.

**Barili, Antonio and Sallustio**—Italy, Sixteenth century. Executed wood carvings and sculpture in stone and metal for the Cathedral of Siena.

**Barili, Giovanni**—Italy, (Florence). Fifteenth and Sixteenth centuries. Worked under Raphael Sanzio. Carved in arabesque

relief, doors most of paneling of the Stanze in the Vatican, also executed shutters and other parts through pupils.

**Barili, Sallustio**—See Barili, Antonio and Sallustio.

**Barry, Sir Charles**—England, Nineteenth century. Architect. Woodwork of Houses of Parliament.

**Batterson, James**—United States (Boston), Seventeenth or Eighteenth century. Clockmaker.

**Baumgartner, Ulrich**—Germany, Seventeenth century. Cabinetmaker of the "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Beaugreant, Guyot de**—Flanders, (born at Mechlin). Sixteenth century. Helped design chimney-piece in the council chamber of the Palais de Justice, Bruges. Executed portions, himself.

**Beck, Sebald**—Germany, Sixteenth century. Joiner. In Nurnberg.

**Bell, John**—England. Pupil of Torrigiano. Painter of Torrigiano School.

**Bell, Philip**—England, Eighteenth century. Cabinetmaker.

**Belli, Andrea Alessandro**—Italy, Sixteenth century.

**Belli, Giovanni**—Italy, Sixteenth century.

**Bennett, Samuel**—England, (London), late Seventeenth century. Cabinetmaker. Name found on cabinets and other pieces of furniture of very fine workmanship.

**Bennemann, Wilhelm** (German)—France, Eighteenth century. "Maitre ebeniste" in 1785. Made Marie Antoinette several important pieces of furniture. Made much furniture at Louis XVI court.

**Berain, Claude**—France, Seventeenth and Eighteenth centuries. Brother of Jean Berain, the elder. Minor artist in arabesque work.

**Berain, Jean**—(the elder)—France, 1638-1711. Famous for arabesque work. Designed ornaments for Andre Charles Boulle's inlaid work. Decorated rooms and furniture. Made scenes and designed dresses for operas, etc., also heads for Louis XIV's ships of war. Published books on design.

**Berain, Jean**—(the younger)—France, 1678-1726. Like father, artist of arabesque forms. Succeeded his father as "Dessinateur de la Chambre et du Cabinet du Roi".

**Bergamo, Fra Damiano da**—Italy, 1490-1550? Celebrated master of intarsia. First to use stains in intarsia. Executed inlay pictures in the choir of the Church of St. Dominic at Bologna. Executed in intarsia perspective architectural designs furnished by Vignola. Employed by the Benedictines of Perugia, for whom executed stallwork and other fittings.

**Bergamo, Stefano da**—Italy, Sixteenth century. Assisted brother, Fra Damiano da Bergamo.

**Bernardo**—Italy, Sixteenth century.

**Berruguete**—Spain, 1480-1561. Second son of Pedro Berruguete. Pupil of Michael Angelo. Knighted and attached to the personal household of Charles V. Founder of modern school of painted sculpture in Spain.

**Bertolina, B. J.**—Italy, Sixteenth century.

**Beyaert, Josse**—Flanders, Fifteenth century. Carved roof of

the Salle de Mariage, Hotel de Ville at Louvain, with scenes from the life of Christ.

**Binson, Andrieu de**—France, Eighteenth century. Decorator of furniture and carriages.

**Blake, S.**—England, Nineteenth century. Maker of marquetry furniture (French style).

**Bland, Charles**—England, Seventeenth century. Cabinet-maker to Charles II.

**Blondeel, Lancelot**—(Born at Bruges)—Flanders, 1495-1560. Helped design chimney-piece in council chamber of Palais de Justice, Bruges.

**Bolgie, Giuseppe**—Italy, Eighteenth century. Carved wood-work in Royal Palace at Turin (queen's apartments).

**Bolte, Adrian**—England, Seventeenth century. Cabinetmaker to Charles I.

**Bonzanigo, Giovanni Maria**—Italy, Eighteenth century. Wood sculptor. Formed school of carvers in Turin.

**Borello, Francesco**—Italy, Sixteenth century.

**Borgona, Felipe**—Spain, Sixteenth century. Carver.

**Boroughs, John, and Farnbrough, William**—England, Seventeenth century. Partners. Cabinetmakers to Charles II.

**Bosse, Abraham**—France, 1602-1670. Engraver. Designs used to decorate furniture.

**Bossi**—(Italian)—Ireland, late Eighteenth century. Inlayer and stucco worker.

**Botto, Bartolommeo**—Italy, Sixteenth century. Son of Pietro Botto. Wood carver.

**Botto, Giovanni Battista**—Italy, Sixteenth century. Wood carver.

**Botto, Pietro**—Italy, Sixteenth century. Wood carver of Turin. Employed by Palazzo Grande.

**Botto, Secondo Antonio**—Italy, Sixteenth century. Employed by cousin Bartolommeo Botto.

**Boulle, Andre Charles**—France, 1642-1732. Cabinetmaker and designer. Perfected the marquetry called Boulle or Buhl work. Made furniture of the Palace of Versailles.

**Boulle, Pierre**—France, Seventeenth century. "Premier ebeniste", (chief carpenter) to Louis XIII. Probably worked on marquetry named after Andre Charles Boulle.

**Boulton, Matthew**—England, Eighteenth century. Producer and developer of ormolu mounts and wares. Also produced various kinds of metal mounts at his works at Soho.

**Bourdin, Michel**—France, Sixteenth century. Cabinetmaker and carver.

**Bradburn, John**—England, Eighteenth century. Cabinetmaker to George III.

**Bradley, Thomas**—United States (Boston), Eighteenth century. Clockmaker from London.

**Bradshaw, William**—England, Eighteenth century. Cabinetmaker and upholsterer.

**Brand, John**—United States (Boston), early Eighteenth century. Clockmaker from London.

- Brandri**—(Italian)—France, Seventeenth century. Worked with Goletti at "Pietra Dura" under Colbert.
- Brescia, Raffaello da**—Italy, Sixteenth century. Worker in intarsia and inlay.
- Brinner, John**—United States (New York), Eighteenth century. Cabinet and chairmaker from London.
- Brodstock, William**—England, Seventeenth century. Upholsterer and cabinetmaker to Charles II.
- Bross, de**—France, Seventeenth century. Designed Louis XIII chimney paneling.
- Bruggemann, Hans**—Germany, Fifteenth century. Carver. Executed elaborate altar at Schleswig.
- Bruhl, Albert**—Flanders, Sixteenth and Seventeenth centuries. Carved choir seats and stallwork of the church of St. Giorgio Maggiore in Venice, a celebrated example of such work.
- Brunelleschi, Filippo**—Italy, 1377-1446. Carved in lime wood statue of St. Mary Magdalen for Convent of St. Spirito, Florence. Carved crucifix as a competitive trial against one by Donatello, now in the chapel of the Gondi in the church of St. Maria Novella in Florence.
- Brustolone, Andrea**—Italy, 1670-1732. Carver of glass, picture frames, chairs, etc. Executed rich acanthus carving prepared for gilding, an effective feature of old Italian work. Cut crucifixes for church of St. Peter in his native place, Belluno.
- Buontalenti, Bernardino Timanti**—Italy, 1536-1608. Designer. Learned art under G. Vasari and Michael Angelo. Worked for Francesco de Medici executing his designs for miniatures and painted panels for furniture. Favored Barocco style.
- Burb**—France, Eighteenth century. Did work in vernis martin for Mme. de Pompadour.
- Caffieri, Jacques**—France, 1678-1755. Famous sculptor in bronze. Especially noted for Rocaille style of Louis XV.
- Caffieri, Philippe**—France, 1714-1774. Assisted father, Jacques Caffieri. Made carved gilt furniture with light blue backgrounds.
- Callow, Stephen**—United States (New York), Eighteenth century. Upholsterer.
- Campbell and Sons**—England, Eighteenth century. Cabinet-makers to George IV when Prince of Wales.
- Canabas, Joseph**—France, Eighteenth century. Made mechanical tables.
- Cano, Alonzo**—Spain, Seventeenth century. Studied under father, Miguel Cano, who was a carver. Also studied painting under Francesco Pachero at Seville.
- Canova, Jacopo de**—Italy, Sixteenth century. Carver.
- Canozii, Christoforo**—Italy, Sixteenth century. With Lorenzo Canozii, executed intarsia work and stalls in sacristy of St. Marco, Venice.
- Canozii, Giovanni Marco**—Italy, Sixteenth century. Son of Lorenzo Canozii. Carved the choir stalls of the chapel of the Zoccolanti in the church of San Francisco della Vigna.
- Canozii, Lorenzo**—Italy, Sixteenth century. With Christoforo Canozii, executed the intarsia work and stalls in the sacristy of St. Marco, Venice.

**Capitsoldi**—England, Eighteenth century. Made metal mounts for marquetry, furniture, etc.

**Capo di Ferro, Brothers**—Italy, Sixteenth century.

**Carlin, E.**—France, Eighteenth century. Name found stamped on table in Jones Collection.

**Carlin, Martin**—France, Eighteenth century. Cabinetmaker, and founder and chaser of metal furniture mounts of Louis XVI period. Several of his pieces in Wallace Collection and Victoria and Albert Museum.

**Carlone, Ignazio**—Italy, Eighteenth century. Carved wood-work in Royal Palace at Turin (queen's apartments).

**Carnicero, Alexandro**—Spain, 1693-1756. He studied sculpture under Joseph de Lara, at Samora. Worked for convents at Valladolid and Coria. Founded confraternity of painters and sculptors at Salamanca.

**Carpenter, Thomas**—England, Eighteenth century. Cabinet-maker.

**Carter, John**—England, Eighteenth century. Architect. Designed furniture. Published "Specimens of Ancient Sculpture and Painting".

**Casbert, John**—England, Seventeenth century. Upholsterer to Charles II. Also maker of furniture.

**Casement, William**—England, last part of Eighteenth century. Minor designer of furniture. Contributed plates to the "Cabinetmakers' London Book of Prices of Designs of Cabinet Work", published in 1788 and 1793.

**Castelli, Quirico**—Italy, Sixteenth century. Of Lugano. Employed with Botto family.

**Catherine of Braganza**—England, 1638-1705. Wife of Charles II. Brought from Portugal new and lavish tastes in furniture and decoration which quickly spread in England.

**Catignou, James**—England, late Seventeenth century. Cabinetmaker.

**Cauner**—France, Eighteenth century. Designer of extravagant looking-glass frames, etc.

**Cauvet, Paul Giles**—France, 1731-1788. Designed arabesques for panel carving, and furniture in wood marquetry and in plain mahogany, snakewood, etc., fitted for the metal mounts of Gouthiere and other artists in the same line.

**Cauvicia, Chimenti**—Italy, Fifteenth century. A Florentine attached to the Crown of Hungary. Erected palaces, built fortresses, and executed, with the aid of Baccio Cellini, works of wood carving and ornamental work of every description.

**Ceracci, Guiseppe**—(Roman)—England, Eighteenth century. Modeled for Robert Adam.

**Cerceau, Amdrouet du**—France, 1515-1585. Architect and engraver. Designs used for furniture.

**Cervelliera, Battista del**—Italy, Sixteenth century. Of Pisa. Worker in intarsia and inlay.

**Challen, William**—United States, (New York), Eighteenth century. Fancy chairmaker from London.

**Chambers, Sir William**—England, 1726-1796. Architect. Traveled and studied in China, publishing, in 1759, "Designs of

Chinese Buildings, Furniture, Dresses, Machines and Utensils." Designed furniture in Chinese style.

**Chippendale, John**—(also called Thomas)—England, Eighteenth century. Father of Thomas Chippendale. Carver in Worcester, later came to London with son.

**Chippendale, Thomas**—England, Eighteenth century. Famous cabinetmaker and designer of furniture. See page 203.

**Chippendale, Thomas**—(the younger)—England, 1789-1820. Son of Thomas Chippendale. Carried on his father's business until early in the Nineteenth century when it came to an end.

**Cipriani, John Baptist**—(Italian)—England, 1717-1785. Went to London, 1755. Painted medallions and cameo panels for table tops, drawers, cabinet fronts, etc., for Adam, Chippendale, Chambers, and other furniture designers.

**Claggett, Thomas**—United States (Newport, R. I.), First half of Eighteenth century. Clockmaker.

**Claude, Charles S.**—France, Eighteenth century. Plain cabinetwork with metal mounts.

**Claude, Lebesque**—France, Eighteenth century. Worked in Paris, 1771.

**Cleyn, F. R.**—England, Seventeenth century. Worked for Charles II.

**Coech, Pierre**—Flanders, Sixteenth century. Architect and painter. Adopted and popularized designs of Serlio and Vitruvius.

**Coit**—England, Eighteenth century. Chaser of metal mounts.

**Colbert, Jean Baptiste**—France, 1619-1683. Minister of Finance to Louis XIV. Founded 1664, French Academy of Painting, Sculpture, etc. Quartered, in Louvre, artists who produced fine furniture for Royal palaces.

**Cole, Cornelius**—England, Seventeenth century. Cabinetmaker. Worked for William and Mary, making furniture for Royal Palaces.

**Collet, Nicolas**—(French)—England, Eighteenth century. Carver brought from France to work on great state carriage.

**Collman, L. W.**—England, Nineteenth century. Well-known decorator. Designed and made furniture.

**Columbani, Palcido**—(Italian)—England, Eighteenth century. Assisted Robert Adam in designing decorative work. Published in 1775 "A New Book of Ornaments" and in 1776 "A Variety of Capitals Friezes, Cornices and Chimney-pieces."

**Cooke, Humphrey**—England. Pupil of Torrigiano. Carpenter of Torrigiano School.

**Copland, H**—Same as Copeland, H.

**Copeland, H.**—England, Eighteenth century. Cabinetmaker. Published in 1746, with designer named Bucksher, "A New Book of Ornaments", and in 1768 with Mathias Lock, "A New Book of Ornaments".

**Cosimo, Andrea di**—Italy, Fifteenth century. Painted chests and furniture of all sorts, friezes, coffers, caskets, ceilings, wainscots, and other work. Also designed tapestries, brocades, and other textiles.

**Cosson, J. L.**—France, Eighteenth century. Name found stamped on table in Jones Collection.

**Cotte, Jules Robert de**—France, Eighteenth century. Published designs, among which are beds, marquetry cabinets with clock fitted above, 41 ceiling designs, mirror frames, bureaux, etc.

**Cotte, Robert de**—France, 1656-1735. Architect and occasional designer of interior furniture.

**Cotton, Charles, R. A.**—England, Eighteenth century. Painted coaches and shop signs.

**Couet, L. Jacques**—France, Eighteenth century.

**Cox, Joseph**—United States (New York), Eighteenth century. Upholsterer, cabinetmaker and dealer in furniture.

**Coxed, G. and Wosilk, T.**—England (London), Seventeenth and Eighteenth centuries. Partners. Cabinetmakers and dealers in furniture.

**Cramer, M. G.**—France, Eighteenth century. Name stamped on tables in Bethnal Green Museum, Mainwaring Collection.

**Cressent, Charles**—France, 1685-1768. Pupil of Andre Charles Boulle. Cabinetmaker to Philippe d'Orleans, Regent of France. Master in works of art in bronze.

**Crunden, John**—England, last half of Eighteenth century. Minor designer of furniture. Published in 1765 "The Joyner and Cabinetmakers' Darling, or Sixty Designs for Gothic, Chinese and Ornamental Frets"; in 1770, "The Carpenter's Companion for Chinese Railings and Gates"; in 1776, "The Chimney-piece Maker's Daily Assistant".

**Cucci, Domenico**—(Italian)—France, Seventeenth century. Cabinetmaker. Worked for Louis XIV. Made highly decorative furniture.

**Darby, Mathias**—England, Eighteenth century. Designer, engraver, caricaturist, print-seller and publisher. Engraved plates for Chippendale's "Director", and for other furniture makers. Published (1770) "A Complete Body of Architecture, embellished with a great variety of ornaments". From about 1741 to 1763 was partner of Edwards in the firm, Edwards and Darby. In 1754 firm published "A New Book of Chinese Designs".

**David**—See Roentgen, David.

**Davis, William**—United States (Boston), Seventeenth century. Clockmaker.

**Davy, Robert**—England (Cornwall), 1750-1794 Wood carver.

**Decaix**—England, Sixteenth or Seventeenth century. French metal-worker employed by Thomas Hope.

**Dello Delli**—Italy, Fourteenth and Fifteenth centuries. Specialized in the decorating of the painted cypress chests of Florentine work. Painted furniture of an entire room for Giovanni de' Medici.

**Deloose**—France, Eighteenth century. Name stamped on table in Jones Collection.

**Delorme**—France, Eighteenth century. Name stamped on table in Mainwaring Collection, Bethnal Green Museum.

**Denizot**—France, Eighteenth century. Name stamped on table in Mainwaring Collection, Bethnal Green Museum.

**Derignee, Robert**—England, Seventeenth century. Carver and



cabinetmaker. Made carved and gilt furniture for royal palaces of William and Mary.

**Dolen, Van**—Flanders, Eighteenth century. Carver of woodwork in Church of SS. Michel and Gudule, Brussels.

**Donatello**—Italy, 1380-1466. Commonly called Donato. Supposed to have worked on furniture of mixed wood and composition, learned under Dello.

**Dorsient, Chistus Oc**—Flanders, Sixteenth century. Name found on a panel in the pediment of an oak door brought from the Hotel de Ville, Antwerp. Dated 1580.

**Dowbiggin**—England, Eighteenth and Nineteenth centuries. Apprentice to Gillow.

**Drevet**—(Belgian)—England, Seventeenth and Eighteenth centuries. Carver. Pupil of Grinling Gibbons.

**Ducerceau, A.**—France, 1515-1585.

**Dugar, E.**—Italy, Sixteenth century.

**Dugoure**—France, late Eighteenth century. Designed for Beneman, Swerdlicher, and others.

**Duplessis**—France, late Eighteenth century. Famous mounter of furniture.

**Du Quesnoy, F. H. and J.**—Flanders, Seventeenth century.

**Eastlake, Sir Charles Lock F. R. S., D. C. L.**—England (London), 1793-1865. Cabinetmaker and designer. President of The Royal Academy. Director of the National Gallery. See page 250.

**Ellaume, Jean C.**—France, Eighteenth century. Worked in Paris, 1754.

**Elliott, Charles**—England, Eighteenth century. "Upholder to His Majesty and Cabinetmaker to the Duke of York, Bond Street."

**Essex, Joseph**—United States (Boston), Eighteenth century. Clockmaker.

**Etienne, Avril**—France, Eighteenth century. Plain cabinet work with metal mounts.

**Ewer, Nicholas**—England. Pupil of Torrigiano. Coppersmith and gilder of Torrigiano School.

**Farnbrough, William**—See Boroughs, John.

**Faydherbe, Lucas**—(born at Mechlin)—Flanders, 1617-1694. Sculptor. Seems to have been pupil of Rubens.

**Feuchere**—France, Eighteenth century. Mounter.

**Filippo, Dominico di**—Italy, Sixteenth century. A Florentine. With Giovanni da Montepulciano in 1573, carved the woodwork of the Duomo of Siena.

**Fitzcook, H.**—England, Nineteenth century. Designer of furniture.

**Flaxman, John**—England, 1755-1826. Renowned sculptor and draughtsman. Made plaques for Wedgwood.

**Florein, John**—Flanders, Fifteenth century. Executed stalls of St. Mary's in the Schaurgasse, Cologne.

**Floris, Corneille**—Netherlands, Sixteenth century. Introduced Italian ornamentation and grotesque borders.

**Flotner, Peter**—Germany, Sixteenth century. Wood carver and designer of furniture. In Nurnberg.



**Forestier**—France, Eighteenth century. Moulder of mahogany furniture.

**Fourdinois**—France, Nineteenth century.

**France, William**—England, Eighteenth century. Cabinet-maker. Worked for first Lord Mansfield at Ken Wood and Bloomsbury Square. Made most of furniture at Ken Wood.

**Francesco de Medici**—Italy. Cabinetmaker.

**Gabler, Matthias**—Germany, Seventeenth century. Windlass maker. Employed on the "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Gaine**—France, Eighteenth century.

**Gale, Cornelius**—England, late Seventeenth century. Cabinetmaker.

**Galletti, Giovanni**—Italy, Eighteenth century. Successor to Pifetti.

**Gallieux**—France, Eighteenth century. Moulder. Name stamped on table in Jones Collection.

**Garnier, P.**—France, Eighteenth century. His name stamped on table, and on marquetry encoignures in the Duke of Westminster's Collection.

**Gautier, Andrew**—United States (New York), Eighteenth century. Chairmaker (Windsor type).

**Genfer, M.**—Germany, Seventeenth century.

**Germain, Thomas**—France, Eighteenth century. Gold and silver-smith. Worked in Rocaille style.

**Gervasius**—England, Seventeenth century.

**Gettich or Gottlieb, Paulus**—Germany, Seventeenth century. Engraver of the "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Geuser, Marx**—Germany, Seventeenth century. Organ builder. Employed on the "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Gheel, Francis Van**—Flanders, Eighteenth century. Carved pulpit of St. Andrew's church, Antwerp.

**Gibbons, Grinling**—England, 1648-1720. Famous carver of decorative woodwork and sculptor in marble and stone. Associated with Sir Christopher Wren. Master-carver to four sovereigns. Founded school of carving. Born at Rotterdam of English parents.

**Gibbs, James**—England, 1674-1754. Noted Scottish architect. One of the architect-designers of furniture of the first half of the Eighteenth century.

**Gilbert, John**—England, Eighteenth century. Cabinetmaker and carver.

**Gillet, Louis**—France, Eighteenth century.

**Gillow, Richard**—England (Lancaster), Eighteenth century. Cabinetmaker and designer. See page 224.

**Gillow, Robert**—England, Seventeenth and Eighteenth centuries. Father of Richard Gillow. Cabinetmaker and designer. See page 224.

**Giovanni, Fra**—Italy, Sixteenth century. An inventor of colored wood inlaying, etc. Summoned to Rome to execute intarsia in the Vatican.

**Glosencamp, H.**—Flanders, Sixteenth century. Helped carve chimney-piece in the council chamber of the Palais de Justice, Bruges.

**Goddard, John**—United States (Newport, R. I.), third quarter of Eighteenth century. Maker of block-front furniture.

**Goletti**—France, Seventeenth century. Worked under Colbert. Did "pietra dura" work.

**Golle, Cornelius**—See Cole, Cornelius.

**Golle, Peter**—(Dutch)—France, Seventeenth century. Cabinetmaker. Worked for Louis XIV at Versailles.

**Goodison, Benjamin**—England, Eighteenth century. Cabinetmaker. Made walnut and mahogany furniture for George II. Besides supplying furniture for Royal palaces and other buildings also repaired furniture.

**Goujon, Jean**—France, Sixteenth century. Great sculptor; also carved furniture in chateaux around Alencon and doors of the church of St. Maclou at Rouen.

**Gouthiere, Pierre**—France, 1740-1806. Famous for making of fine mouldings, bordering panels of cabinets, larger angle mounts, feet, edgings, etc., of furniture, as well as making of fine bronze mounts. Much of finest work was made for cabinets, of which panels are plates of Sevres porcelain painted for the purpose.

**Grendey, Giles**—England, early Eighteenth century. Chair and cabinetmaker.

**Griffiths, Edward**—England, Eighteenth century. Cabinetmaker. In 1743 was assistant to Benjamin Goodison, later set up own business.

**Gumley, John**—England, Eighteenth century. Cabinetmaker and manufacturer of glass. Made furniture for Royal palaces in the reigns of William and Mary, Anne, and George I.

**Habermann**—France, Eighteenth century. Designed in the Rococo or Pompadour style.

**Habert**—Italy, Sixteenth and Seventeenth centuries. Name stamped on furniture.

**Haeghen, Vander**—Flanders, Eighteenth century. Carved altar in the church of Notre Dame, Termonde, and additions to pulpit of St. Gudule, Brussels.

**Haig, Thomas**—England, Eighteenth century. Cabinetmaker and upholsterer. Partner of Chippendale and after Chippendale's death in partnership with Chippendale's son, Thomas Chippendale, the younger.

**Halfpenny, William and J.**—England, Eighteenth century. Architects and designers of furniture. William Halfpenny, author of several books on architecture.

**Hallet, William**—England, Seventeenth or Eighteenth century. Cabinetmaker.

**Heckinger, Jonas**—Germany, Seventeenth century. Instrument case maker, leather embosser, etc. Employed on the "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Heinhofer, Philip**—Germany, Sixteenth and Seventeenth centuries. Designer of the "Pomeranian Art Cabinet", preserved in Royal Museum at Berlin. It was made for Philip II, Duke of Pomerania, under special ducal direction, 1611-1617.

- Helmont, Van**—Flanders, Eighteenth century. Carved church pulpits, including the pulpits of St. John Baptist, Cologne.
- Henri, Francois**—Flanders, Seventeenth century. Carver.
- Henrieux**—France, Eighteenth century. A famous mounter.
- Hepplewhite, Alice**—England, Eighteenth century. Widow of George Hepplewhite. Continued husband's business under name of A. Hepplewhite & Co. In 1788 published "The Cabinet-Maker and Upholsterers' Guide".
- Hepplewhite, George**—England, Eighteenth century (Died in 1786). Famous designer of furniture. See page 213.
- Hernandez, Geronimo**—Spain, 1586-1646. Architect and sculptor. Carved church work.
- Herring**—England, Nineteenth century. Maker of furniture.
- Holbein**—England, Early Sixteenth century. Introduced into England "Renaissance style".
- Holland, Henry**—England, 1746?-1806. Architect. Introduced Greco-Roman detail in England. Published book of designs.
- Holmes, W.**—England, Nineteenth century. Designer.
- Holthausen, H. J.**—France, Eighteenth century. Name stamped on table in Bethnal Green Museum (Mainwaring Collection).
- Hool, John Baptist Van**—Flanders, Eighteenth century. Carved pulpit of St. Andrew's church, Antwerp.
- Hope, Thomas**—England and Flanders, 1769-1831. Architect and designer of furniture in classic style.
- Huet**—France, Eighteenth century. Chaser. Worked in metal at the time of Gouthiere, during the reign of Louis XVI.
- Huygens**—(Dutch)—France and Holland, Seventeenth century. Inventor of preparation used in producing imitation of Chinese lacquer.
- Hyman, Francis**—(Flemish artist)—England. Early Eighteenth century. Decorator of the Rotunda in Vauxhall gardens.
- Ince, W., and Mayhew, J.**—England, Eighteenth century. Designers, cabinetmakers, and upholsterers. In partnership under name of Ince & Mayhew, in Broad Street, Golden Square, London. Published book of designs, "The Universal System of Household Furniture", in 1762-1763. See page 224.
- Jackson and Graham**—England, Nineteenth century. Manufacturers of furniture.
- Jacob, Francois Georges**—France, Eighteenth and Nineteenth centuries. Famous cabinetmaker of Empire period. Made furniture for Napoleon and Josephine as well as for many others in France and other countries.
- Jacob, Georges**—France, Eighteenth century. Cabinetmaker. Father of Francois Georges Jacob.
- Jacquemart, Albert**—France, Nineteenth century. Wrote history of furniture (1877).
- Jensen, Gerriet**—England, Seventeenth century. Cabinet-maker. Made furniture for Charles II, William and Mary, and Anne. Made many fine pieces including gilt tables, stands, mirror frames, and inlaid tables.
- John of Padua**—France, Fifteenth century. Employed by Henry VIII.

**John of St. Omer**—(French)—England, Thirteenth century. Constructor of drains, baths, water-conduits, and room paneling.

**Johnson, Gerrard**—Same as Gerriet Jensen.

**Jöhnson, Thomas**—England, Eighteenth century. Wood-carver and designer of furniture. Published in 1758, "Designs for Picture Frames, Candelabra, Ceilings, etc.", and in 1761, "One Thousand and Fifty New Designs".

**Jones, Inigo**—England, 1573-1651. Famous architect. See page 159.

**Jones, William**—England, Eighteenth century. Furniture designer. Published book of designs in 1739, "Gentleman and Builder's Companion."

**Juni, Juan de**—Spain, Sixteenth and Seventeenth centuries. Pupil of Michael Angelo. Carved life-sized history of the life of Christ at Segovia.

**Just, Joseph**—United States (Boston), last quarter of Seventeenth century. Upholsterer.

**Kampen, Lambert van**—Germany, Sixteenth century. Carved panels in Chapter House, Munster, Westfalen.

**Kauffmann, Angelica**—England, 1741-1807. Swiss painter, studied in Italy, and came to England in 1766, where she worked for 15 years. Designed and painted beautiful panels, plaques, and arabesques on furniture designed by Hepplewhite, Sheraton, Adam Brothers, and others.

**Kent, William**—England, 1684-1748. Architect, designer of furniture, painter, sculptor, landscape gardener, etc.

**Kiskner, Ulrich**—Germany, Seventeenth century. Cabinet-maker. Employed on the "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Kraft, J. C.**—England, Eighteenth century. Architect.

**Kuenlin, Jacob**—Germany, Seventeenth century. A locksmith of the "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Labarte**—France, Nineteenth century. Wrote book on furniture collection (1864).

**Ladetto, Francesco**—Italy, Eighteenth century. Of Turin. Modeler and chaser of bronze mounts for furniture.

**Lalonde**—France, Eighteenth century. Designed console tables and other furniture fitted for recesses and special parts of rooms, also furniture with mechanical contrivances.

**Lane, John**—England, Eighteenth century. Maker of knife-cases.

**Langley, Batty**—England, 1695-1751. Architect and furniture designer. His firm, Batty and Thomas Langley, published in 1740, "The City and Country Builder's and Workman's Treasury of Design", and other books. Because of his frequent use of ogee or cyma curves in panel mouldings it is often termed the Batty Langley style.

**Langley, Thomas**—England, Eighteenth century. Younger brother of Batty Langley. Architect and designer of furniture. Business partner of brother Batty Langley.

**La Pierre, Francis**—England, Seventeenth or Eighteenth century. Upholsterer. Supplied royal palaces and Chatsworth with covers for furniture.

**Lardant, Jacques**—France, Sixteenth century. Cabinetmaker.

**Lathille, Pierre**—France, Eighteenth century. Worked in Paris, 1737.

**Lawreans**—(Belgian)—England, Seventeenth century. Carver. Pupil of Grinling Gibbons.

**Le Brun, Charles**—France, 1619-1690. Painter and first director of Gobelins factory. Famous artist under Louis XIV.

**Lecreux, Nicholas Adrian Joseph**—Flanders, 1757-1836. Carver of pulpits.

**Lelen, Jean Francois**—France, Eighteenth century. Ebonist of Louis XVI style. A buffet and an upright secretaire of his work are in the Wallace Collection. Finest work, the "Cartonnier" at Chantilly, formerly in the Hamilton Palace Collection.

**Le Moyne, Jean**—France, 1645-1718. Artist decorator. Employed on the gallery of Apollo, and superintended the decoration of the Tuileries. Published books of design.

**Leopardi, Alexandro**—Italy, 1450-1525. Sculptor. Also carver in wood.

**Le Pautre, Jean**—(Pupil of Philippon)—France, 1617-1682. Published "Livre de Miroirs, Tables de Gueridons", and many other books.

**Le Roux, J. B.**—France, Eighteenth century. Designer of chimney panels and room decorations.

**Levasseur**—France, Eighteenth century.

**Lieutand**—France, Eighteenth century. Name stamped on furniture in "National Mobilier", Paris.

**Linnell, J.**—England, last half of Eighteenth century. Cabinetmaker and designer of furniture.

**Lock, Matthias**—England, Eighteenth century. Cabinet-maker, contemporary with Chippendale. Published with H. Copeland books of furniture design and ornament, one of which is "A New Book of Ornaments". See page 224.

**Loir, Alexis**—France, 1630-1713. Engraver of ornaments. Published books on ornaments, designs, etc.

**Loir, Nicolas**—France, Seventeenth century. Worked with brother, Alexis Loir.

**L'Orme, Philibert de**—France, Sixteenth century. Early designer of chimney fronts with terminal figures, scrolls, etc., as seen in French and Elizabethan interiors.

**Lunigia, A. da**—Italy, Sixteenth century.

**Mace, Claud, Isaac, Louis (?)**—France, Seventeenth century. Sons of Jean Mace.

**Mace, Jean**—France, Seventeenth century. "Menuisier en ebene" (carpenter in ebony), lodged in the Louvre, 1544.

**Maffeis, P. di**—Italy, Fifteenth century.

**Maggiolino**—Italy, Eighteenth century. Milanese cabinet-maker. Maker of marquetry chests of drawers and cabinets in light wood.

**Magister, O.**—Italy, Sixteenth century.

**Majano, Benedetto da**—Italy, Fifteenth century. Learned art of intarsia under brother, Giuliano da Majano. Executed two beautiful coffers for Matthias Corvinus, King of Hungary.

**Majano, Giuliano da**—(born in Florence)—Italy, 1432-1490.

Learned art of intarsia under Giusto and Minore in the works of the sacristy of the Numziata, where he executed seats. He did work in the choir beside the chapel at Fiefole and in San Mario. In cathedral at Pisa executed seat that stands beside the high altar. The back of this seat is decorated with intarsia work, displaying figures of the three prophets.

**Manwaring, Robert**—England, Eighteenth century. Furniture maker. Contemporary of Chippendale. Best known for his chairs. Published in 1765 "The Cabinet and Chairmaker's Real Friend and Companion", and in 1766, "The Chairmaker's Guide", in 8 vol. form. See page 224.

**Margaritone, of Arezzo**—Italy, 1236-1313. Invented or practised same kind of work as that commonly attributed to Dello Delli. Little of his work survives, none in the form of furniture.

**Mariotto, Domenico di**—Italy, Fifteenth century. Joiner of Pisa. Executed inlay and carving under Giuliano da Majano.

**Marot, Daniel**—France, 1650-1700? Architect and designer of furniture. Studied under father and Le Pautre. Designed for Andre Charles Boulle. Being protestant fled to Holland, where he became architect and master of works to William III, Prince of Orange, later king of England. Responsible for introduction of Franco-Dutch designs into England.

**Marot, Gerard**—France, Seventeenth century. Cabinetmaker. Taught son, Jean Marot.

**Marot, Jean**—(son of Gerard Marot)—France, 1625-1679. Architect and decorator. Finished the Louvre, the church of the Feuillantines, hotel de Noailles, and other Paris buildings. Chief works were interior decorations. Also known as engraver. Wrote on architecture.

**Martin, Guillaume, Simon Etienne, Julien and Robert**—France, Eighteenth century. Four brothers. Either Robert or Simon Etienne was the inventor of vernis martin. Originally carriage and sedan-chair painters, later were granted monopoly by French government for all kinds of lacquer-work. Had three factories in Paris, which later became by royal decree "Manufacture Nationale".

**Martincourt**—France, early Eighteenth century. Founder and chaser of bronzes, etc. Master of Gouthiere.

**Mason, David**—United States (Boston), Eighteenth century. Japanner and painter.

**Mayhew, J.**—See Ince, W., and Mayhew, J.

**Maynard, Robert**—England. Pupil of Torrigiano. Painter of Torrigiano School.

**McIntire, Samuel**—United States (Salem), Eighteenth century. Famous wood carver.

**Meissonnier, Juste-Aurele**—(Italian)—France (Paris), 1693-1750. Introduced broken shell-shaped curves, Rococo style of Louis XIV and XV, and extravagant Italian decoration. Appointed director of Royal Factory in Paris 1723. Published "Le Livre des Legumes" and "Le Livre d'Ornements" both of which expound Rococo style.

**Mendeler, G.**—Germany, Seventeenth century.

**Meulen, Laurence Vander**—Flanders, 1645-1717. Carved chimney-pieces. Carving resembles Grinling Gibbon's style.

**Miglionne, Ferdinand Filippo de**—France, Seventeenth century. Invited to France by Colbert.

**Minore, G.**—Italy, Fifteenth century.

**Minshall, John**—England, Eighteenth century. Carver and gilder of mirror frames.

**Minshall**—United States (New York), Eighteenth century. Carver and gilder from London.

**Modena, Pier Antonio da**—Italy, Fifteenth century. Wood carver. Executed intarsia work in the choir of San Francisco in Treviso in 1486.

**Moenart, M.**—Flanders, Seventeenth century. Carved stalls in the church of St. James, Bruges.

**Molinier**—France, Nineteenth century. Wrote on furniture collections.

**Monamy**—(marine painter)—England, Seventeenth or Eighteenth century. Painted carriages.

**Monbro**—(French)—England, Nineteenth century. Made furniture of ornamental character. Reproduced old designs of "Boulle" and marquetry furniture.

**Montepulciano, Giovanni da**—Italy, Sixteenth century. With Dominico di Filippo in 1573, carved the woodwork of the Duomo of Siena.

**Morand, de Pont de Vaux**—France, Seventeenth and Eighteenth centuries. Name stamped on clock case at Versailles, dated 1706.

**Morant**—England, Nineteenth century.

**More, Alexander**—United States (Boston), last quarter of Seventeenth century. Upholsterer.

**Moser, Lucas**—Germany, Fifteenth century. Carver of altar piece at Trifenbronn.

**Muller, Daniel**—Germany, Seventeenth century. Turner. Employed on the "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Muller, Joifs**—Germany, Seventeenth century. A locksmith of the "Pomperanian Art Cabinet". See under Heinhofer, Philip.

**Newrone, G. C.**—Italy, Sixteenth century.

**Nilson**—France, Eighteenth century. Designer of extravagant looking-glass frames, etc.

**Nys, L. de and P. de**—Flanders, Eighteenth century. They both carved confessionals.

**Oeben, Jean Francois**—France, Eighteenth century. Famous ebonist of Louis XV period. Master of Riesener. Designer of Bureau du Roi now in Louvre. Name stamped on secretary in Jones Collection.

**Oeben, Simon**—France, Eighteenth century. Probably son of Jean Francois Oeben. Called "inventor" of cylinder secretaires.

**Oost, Peter Von**—Flanders, Fourteenth century. Carved roof of Hotel de Ville in Bruges.

**Oppen, Oorde Jean**—Holland and France, Eighteenth century.

**Oppenord, Alexandre Jean**—(Dutch)—France, Seventeenth century. Furniture master of Louis XIV period.



**Oppenord, Gilles-Marie**—France, 1672-1742. Cabinetmaker and designer of Louis XV style.

**Oudry, Jean Baptiste**—France, Eighteenth century. French artist. Appointed in 1736 Director of the Gobelins Works. Influenced their designs.

**Pacher, Michel**—Germany, Fifteenth century. Did work in the church of Gries.

**Padova, Zampiero da**—Italy, Sixteenth century. Worked with Damiano da Bergamo.

**Pafrat**—France, Eighteenth century. Name found on tables of Jones Collection.

**Palladio, Andrea**—England, 1518-1580. Founder of Palladian style of architecture, based on free use of classic styles adapted to Renaissance period.

**Panturmo, J. di**—Italy, 1492-1556. Maker of decorative furniture of various forms.

**Pardo, Gregorio**—Spain, Sixteenth century. Carver. Executed wardrobe for chapter of Cathedral at Toledo.

**Pareta, Giuseppe di**—Italy, Sixteenth century. Executed in walnut the choir stalls of the convent of St. Dominico Maggiore, Naples.

**Passe, Crispin de**—France, Seventeenth century. Published furniture designs of same style as Vriesse, but slightly lighter. Designed figured panels, garlands, etc.

**Passe, Crispin de**—(The younger)—France, Seventeenth century.

**Percier, Charles**—France, Nineteenth century. Architect and designer of Empire period.

**Pergolesi, Michele Angelo**—(Italian)—England, Eighteenth century. Came to England with Robert Adam, for whom he painted furniture and designed arabesque work, etc., for houses. Also painted furniture for other well-known cabinetmakers. Published "Designs for Various Ornaments on Seventy Plates."

**Perreal, Jean**—France, Fifteenth century. Maker of carriages. In 1483 employed by city of Lyons to work on carriage for Louis XI.

**Petit**—See Pettitt, Nicholas.

**Pettitt, Nicholas**—France, Eighteenth century. Name stamped on specimens in Jones Collection and in Bethnal Green Museum, "1761".

**Philippon, Adam**—France, Sixteenth century. Cabinetmaker. Brought up Le Pautre, took promising artists to Rome.

**Phyfe, Duncan**—United States (New York), 1768-1854. Famous cabinetmaker. See page 236.

**Picau**—France, Eighteenth century. Designer of extravagant looking-glass frames, etc.

**Picq, J.**—Flanders, Seventeenth century. Carved pulpit, St. Nicolas, Ghent.

**Piffetti, A. Pietro**—Italy, 1700-1777. Executed marquetry in the style of Boulle, using ivory, tortoise shell, mother-of-pearl, ebony, rosewood, etc. Furnished Royal Palace of Turin in Boulle style.

**Pigalle**—(French)—England, Eighteenth century. Sculptor brought from France to work on great state carriage.



**Pillon, Germain**—France, late Sixteenth century. Designer of Renaissance period.

**Pinoda**—Spain, Eighteenth century. Signature on painted cabinet in Bethnal Green Museum.

**Pioniez**—France, Eighteenth century. Name stamped on secretary in Jones Collection.

**Plumier, Peter Denis**—Flanders, 1688-1721. Carver of pulpits.

**Porfirio, Bernardino di**—Italy, Sixteenth century. Cabinet-maker and designer. Contemporary of Bernardino Timanti Buontalenti.

**Prignot**—England, Nineteenth century. Designed for Jackson and Graham.

**Proctor, Carden**—United States (New York), Eighteenth century. Clockmaker.

**Puget**—France, Eighteenth century. Furniture and ship decorator.

**Quellin, Artus, (the elder)**—Flanders, 1609-1669. Carver and woodworker.

**Quellin, Artus, (the younger)**—Flanders, 1625-1700. Carver and woodworker.

**Quellin, Erasmus, (the elder)**—Flanders, 1607. Carver and woodworker.

**Quesnoy, Jerome du**—Flanders, Seventeenth century. Carver.

**Radi, Bernardino**—France, Seventeenth century.

**Raephorst, B. van**—Flanders, Fifteenth century. Carved reredos of the church of St. Waltrude in Herenthals.

**Ramello, F.**—Italy, Sixteenth century.

**Randle, William**—United States (Boston), Eighteenth century. Japan and lacquer worker.

**Ranson**—France, Eighteenth century. Chaser. Worked in metal at the time of Gouthiere, during the reign of Louis XVI.

**Rasch, Andrew**—Flanders, Sixteenth century. A carver of the chimney-piece in the council chamber of the Palais de Justice, Bruges.

**Revitt, N.**—England, Eighteenth century. Architect.

**Richter, C.**—France, Eighteenth century. Name stamped on cabinet in Jones Collection.

**Riesener, Henri Francois**—(son of Riesener)—France. Eighteenth century. Painter and cabinetmaker noted for marquetry or inlaid woodwork in which parts are plain reticulation, and other parts or panels filled with graceful flowers, busts, etc., of very delicate tints. Worked much in plain mahogany and letterwood, using the chiseled metal mounts of Gouthiere.

**Riesener, Jean Francois**—France, 1735-1806. Cabinetmaker, celebrated for his marquetry work. Worked with Oeben in Paris. Helped make the "Bureau du Roi" now in Louvre. At death of Oeben took over his work and became noted ebonist until Revolution when he died a ruined man.

**Roentgen, David**—(better known as "David")—France, 1743-1807. Made furniture veneered with plain letterwood, mahogany, etc., of which the gilt metal mounts were by Gouthiere. Worked in marquetry of light and delicate hue. Worked for court of Louis XVI.

**Rogers, Harry**—England, Nineteenth century. Designer and carver. Famous for boxwood carvings. Also wrote on styles of ornament.

**Rohan, Jean de**—France, Sixteenth century. "Maitre menuisiers" (master carpenter) of Rouen, 1548, employed by the municipality of Lyons.

**Rosch, Jacob**—Germany, Fifteenth century. Swiss carver. Woodwork of the cathedral of Chur.

**Rossi, Properzia de'**—Italy, Fifteenth and Sixteenth centuries. Woman artist of Bologna. Executed minute carvings on peach and other fruit stones. Sculptured for church of San Petronio.

**Rovezzano, Benedetto da**—(Florentine)—England, Sixteenth century. Employed on Wolsey's tomb. Taught carving of all kinds.

**Rukers, Thomas**—Augsburg, Sixteenth century. Made the celebrated "Steel Chair" at Longford Castle, a remarkable specimen of German Renaissance style. Presented to the Emperor of Germany in 1577 by the city of Augsburg.

**Ryckers, Th.**—See Rukers, Thomas.

**Saint-Germain**—France, Eighteenth century.

**Saint Yues, Antoine de**—France, Eighteenth century.

**Salembier**—France, Eighteenth and Nineteenth centuries. Published designs for room decorations, panel carvings, mirror frames, etc. His foliage is thin and wiry in drawing though graceful and large in its general sweep and curvature.

**Sambin, Hugues**—France, Sixteenth century. Furniture designer, carver, architect and master cabinetmaker. Executed in 1535 portal of St. Michael, at Dijon, and in same city decorated Palais de Justice of which the ceiling is of wood decorated by late Gothic carving. Published in 1572 illustrated book of designs for pedestals and terminal figures.

**Sangher, John de**—Flanders, Seventeenth century. Church work and wainscoting.

**Saunier, Claude Charles**—France, Eighteenth century. Famous ebonist. Worked for Louis XV and Louis XVI. Cabinet and encoignure in Wallace Collection are examples of his work.

**Sauzay**—France, Nineteenth century. Published in 1863 album of Sauvageot Collection in Louvre.

**Savage, Ebenezer**—United States (Boston), last quarter of Seventeenth century. Upholsterer.

**Savery, William**—United States, (Philadelphia). Late Eighteenth century. Cabinetmaker of fine grade of furniture in Chippendale style.

**Schelden, Peter van der**—Flanders, Sixteenth century. Executed the beautiful woodwork of the panels, etc., in the Hotel de Ville at Audenaerde.

**Schwanhard, Hans**—Germany, Seventeenth century. Supposed to have invented wavy mouldings found on Dutch and German cabinetwork of the Seventeenth century.

**Seddon, Thomas**—England, Nineteenth century. Contemporary with early Gillow. Maker of furniture.

**Seddon, Thomas and George**—England, Nineteenth century.

Sons of Thomas Seddon. Cabinetmakers to George IV, and furnished and decorated Windsor Castle.

**Serbecq, Francesco**—(of Carpi)—France, Sixteenth century. Artist. Decorated furniture. Also executed beautiful wood carvings.

**Serlius, Sebastian**—France, Sixteenth century. Designer of fine Renaissance paneling.

**Servellino, Guido del**—Italy, Fifteenth century. Joiner of Pisa. Executed inlay and carving under Giuliano da Majano.

**Shearer, Thomas**—England, Eighteenth century. Cabinet-maker and designer of furniture. See page 224.

**Sheraton, Thomas**—England, 1751-1806. Cabinetmaker and designer of furniture. See page 218.

**Slocombe, P.**—England, Nineteenth century. Designer.

**Smet, Roger de**—Flanders, Sixteenth century. A carver of the chimney-piece in the council chamber of the Palais de Justice, Bruges.

**Smirke**—(academician)—England, Seventeenth or Eighteenth century. Served his time to Bromley, carriage herald painter.

**Smith, G.**—England, Eighteenth century. Published book of designs.

**Snell**—England, Nineteenth century. Maker of furniture. Specialized in well-made birch bedroom suites.

**Somer, Jacques**—France, Eighteenth century.

**Sorge, John Julius**—United States (New York), Eighteenth century. Japanner.

**Stewart, Jas.**—England, Eighteenth century. Architect.

**Stobre, Laurent**—France, Seventeenth century.

**Stockel, Joseph**—France, Eighteenth century. Worked at Fontainebleau.

**Storrs**—United States (Utica, N. Y.), Clockmaker.

**Stoss, Veit**—Germany, 1438-1533. Sculptor of Cracow, pupil of Michel Wolgemuth. Executed altar piece in the Frauenkirche at Cracow, the Rofenkrautz in the church of St. Lorenz at Nurnberg, and altar pieces in the upper parish church of Bamberg, etc.

**Street, Sir G., R. A.**—England, Nineteenth century. The new Law Courts (mediaeval woodwork).

**Swan, Abraham**—England, Eighteenth century.

**Swerdficher, F.**—France, Eighteenth century. Made jewel cabinet for M. Antoinette. This piece is now in the "Garde Meuble".

**Syrlin, Jorg**—(the elder)—Germany, Fifteenth century. Carved stallwork of the cathedral of Ulm.

**Syrlin, Jorg**—(the younger)—Germany, Fifteenth and Sixteenth centuries. Carved stalls in the monastery of Blambeuren, sounding board in the cathedral of Ulm, and did general carving in cathedral of Ulm under his father.

**Tasso, Domenico**—Italy, Fifteenth and Sixteenth centuries. Wood carver. Executed, with Giovanni Battista Tasso, carvings from drawings of Michelangelo Buonarroti.

**Tasso, Giuliano**—Italy, Fifteenth and Sixteenth centuries. Brother (?) of Marco Domenico Tasso. Carver in wood.

**Tasso, Giovanni Battista**—Italy, Fifteenth and Sixteenth centuries. Wood carver. Executed carvings from drawings of Michelangelo Buonarroti.

**Tasso, Marco Domenico**—Italy, Fifteenth century. Wood carver in Florence.

**Taillebert, Urban**—Flanders, Sixteenth century. Carved stallwork at Ypres.

**Tatham, C. H.**—England, Eighteenth century. Designed interior decorations and coaches.

**Taurini, Ricciardo**—Italy, Sixteenth century. Pupil of Albert Durer. Executed stallwork of Milan Cathedral.

**Taylor, John**—United States (New York), Eighteenth century. Upholsterer and dealer in furniture from London.

**Thomas**—England, Eighteenth century. Architect. Drawings of interior decorations.

**Thomire, Pierre Philippe**—French, 1751-1843. Famous metal chaser. Made plaques with figures in low relief for decorating furniture. Much of work on furniture of Empire period.

**Tolfo, G.**—Italy, Sixteenth century.

**Toms and Luscombe**—England, Nineteenth century. Manufacturers of French furniture.

**Topino, G.**—France, Eighteenth century. Name found on pieces in Jones Collection.

**Toro**—(Italian)—France, Eighteenth century. Chaser and modeler of metal mounts and ornaments. Also made furniture for Palace of Versailles, style of Boulle.

**Torrignano**—England, 1472-1522. Bronze monument of Henry VII and his queen, Elizabeth of York. Influenced wood carving of Henry VIII, Mary and Elizabethan periods.

**Toto, Anthony, or T. Del Nunziato**—England, 1331-1351. Pupil of Torrigiano.

**Town and Emmanuel**—England, Nineteenth century. Manufacturers of decorative furniture.

**Travers, R.**—France, Eighteenth century. Worked in Paris, 1774.

**Trevigi, Girolamo Da**—England, 1503-44. Furnished and decorated pavilions, temporary rooms, kitchens, etc., of the "Field of Cloth of Gold".

**Triard, J. B.**—France, Eighteenth century.

**Tuart**—France, Eighteenth century. Lacquer work.

**Uccello, Paolo**—Italy, 1396-1479. Painted panels, roundels, etc., to decorate seats, couches, chests, etc.

**Ugliengo, Carlo**—Italy, Eighteenth century. Inlaid wood flooring of minute pieces for the Royal Palace of Turin.

**Vanbrugh, Sir John**—England, 1664-1726. Famous architect. Designer of furniture.

**Vasari, G.**—France. Designer.

**Vasson**—France, Eighteenth century. "Bronziste" or mounter.

**Venasca, Giovanni Paolo**—Italy, Eighteenth century. Modeler and chaser of furniture mounts and brasswork. Was employed with F. Ladetto in finishing the marquetry of Pifetti.

**Verbruggen, Peter**—(the elder)—Flanders, Seventeenth cen-

ture. With Henry Francis Verbruggen carved confessionals and figures in churches.

**Verbruggen, Peter**—(the younger)—Flanders, 1660-1724. Carved pulpit of the Jesuits' college, Antwerp, and with Peter, the elder, confessionals and figures in churches.

**Verhaeghen, Theodore**—Flanders, Eighteenth century. Carver of church pulpits at Mechlin.

**Vincenzo, Fra**—Italy. Worked at Verona (intarsia).

**Vion**—France, Eighteenth century. "Bronziste" or mounter.

**Voyers**—England, Eighteenth century. Made metal mounts for marquetry, furniture, etc.

**Vriesse, Vredeman de**—(Flemish)—France, Seventeenth century. Published designs of heavy carved furniture, panels, etc., in Elizabethan style.

**Waldron**—(actor)—England, Eighteenth century. Carver of coaches, chair fronts, etc.

**Walker, Humphrey**—England, Sixteenth century. Sounder. Pupil of Torrigiano.

**Ware, Issaac**—England, Eighteenth century. Architect. Designer of furniture for the houses he erected.

**Watson**—(Pupil of Gibbons)—England. Carved boys' figures at Chatsworth.

**Webb, Isaac**—United States (Boston), Eighteenth century. Clockmaker.

**Webb**—England, Nineteenth century. Manufacturer of furniture.

**Webster, John**—United States (Pennsylvania), Eighteenth century. Upholsterer.

**Wedgwood, Josiah**—England, 1730-1795. Famous English potter. Produced plaques, medallions and roundels for furniture.

**Weinkopf, Wolfgang**—Germany, Sixteenth century. Joiner, in Nurnberg.

**Weissweiler, Adam**—(German)—France, Eighteenth century. Maker of furniture. Made some beautiful pieces of furniture for Marie Antoinette, at St. Cloud.

**Wellford, Robert**—United States (Philadelphia), early Nineteenth century. Manufacturer of composition ornament.

**Wenman, Richard**—United States, (New York), Eighteenth century. Upholsterer.

**Wertheimer, Samson**—England, Nineteenth century. Noted for the excellence of his metal mountings which he both designed and worked. These were applied to caskets of French style.

**Wilkinson**—England, Nineteenth century.

**Willemfens, Louis**—Flanders, 1635-1702. Church work.

**Willett, Marinus**—United States (New York), Eighteenth century. Cabinetmaker and chairmaker.

**William, The Florentine**—England, Thirteenth century. Constructor of drains, baths, water-conduits, and room paneling.

**Wilton, John**—England, Eighteenth century. Decorated late state carriage.

**Wolfender, John**—United States (Boston), last quarter of Seventeenth century. Upholsterer.

**Wosilk, T.**—See G. Coxed and T. Wosilk.

**Wren, Sir Christopher**—England, 1632-1723. Architect and designer of furniture.

**Wright and Mansfield**—England, Nineteenth century. Adam style of furniture.

**Zabello, Francesco**—Italy, Sixteenth century. Wood carver of Bergamo. Also said to have designed tapestry. Executed stalls of the cathedral of Bergamo.

**Zorn, Georg**—Germany, Seventeenth century. Circle maker. Employed on "Pomeranian Art Cabinet". See under Heinhofer, Philip.

**Zucchi, Antonio, A.R.A.**—(Italian)—England, 1726-1795. Decorative painter. Worked for Brothers Adam. Painted panels, plaques, medallions, etc. In 1781, married Angelica Kauffmann and spent rest of life in Italy.

## PART XV

# Annotated Bibliography of Furniture Books

*Based on Compilation by Grand Rapids Public Library under  
supervision of Samuel H. Ranck, Librarian*

## Bibliography of Furniture Books

LISTED ACCORDING TO SUBJECT MATTER

*Based on Grand Rapids Public Library Collection*





# Annotated Bibliography of Furniture Books

Adam, Robert, 1728-1792, and James, —1794.

Decorative work, being a reproduction of the plates illustrating decoration and furniture from their "Works in Architecture", published 1778-1812. London, B. T. Batsford, 1901. [Plates].

—Works in Architecture: 106 plates reproduced in 70 photographs. Cleveland, Ohio, J. H. Jansen, 1916, 2v. Reprint of copy in Avery library, Columbia university. Original edition published, 1778-1822, London. [70 plates].

This reprint evidently includes v.3, a posthumous volume published in 1822.

Adams, Frederick A.

Projects in Furniture Making. Milwaukee, Wis., The Bruce Publishing Co., [c1924].

Based on the author's experience in teaching furniture making to boys in school.

Adams, G. Louis. —1864.

Decorations interieures et meubles des epoques Louis XIII et Louis XIV: reproduits d'apres les compositions de Crispin de Passe, Paul Vredeman de Vries, Sebastien Serlius, Berain, Jean Marot, De Bross, etc., et releves sur des monuments de ces epoques. Paris, A. Morel, 1876.

Adams, Maurice.

My Book of Furniture. London, Maurice Adams, Ltd., 1926.

Treats of the author's work as a designer and craftsman.

Adler, Hazel Hyman, 1888—

The New Interior: Modern decorations for the modern home. New York, The Century Co., 1916.

Furniture treated incidentally.

Agnel, G. Arnaud d'.

Le Meuble: Ameublement provençal et contadin du moyen-age a la fin du xviiiie siecle, preface de Henry Havard. [Limited ed. no. 608]. Paris, Lucien Laveur, 1913. 2v. (Arts et industries artistiques de la provence.)

Albert, Joseph.

Details, Wanddekorationen, Mobil, Gerathe, etc., aus den koniglich Bayerischen Schlossern Neuschwanstein, Linderhof und Herren-Chiemsee sowie aus der koniglichen Residenz in Munchen. Munich, [1894?] [100 plates].

Album General:

Ameublement parisien. Paris, Camis, [1895?] 3v.

Contents:

1. Tous les meubles de salles a manger; Meubles de bureaux, de cabinets de travail et d'antichambre; Meubles de chambres a coucher.
2. Meubles de fantaisie et de salons; Meubles de cuisine et divers; Sieges de tous styles et en tous genres.
3. Tapisseries et tentures; Glaces, ornements, escaliers, billiards, stores, etc.

Alexandre, Arsene. 1859—

Histoire de l'art decoratif du XVIe siecle a nos jours. Paris, Henry Laurens, [1891]. [Plates and il.].

Partly devoted to furniture. Contains some colored illustrations.

Algoud, Henri.

Le mobilier provençal. Paris, Ch. Massin et cie, [1920?] (Collection de l'art regional en France.) [44 plates].

Altbergische Heimatkunst. v.1.

Godesberg, Paul Vorsteher, [1914?] [56 plates].

Contents:

1. Geschnitzte Eichenmobil mit Geleitwoort von Otto Schell.

American Furniture Manufacturer.

v.12-13, Chicago, Trade Periodical Co., 1922-1923, 2v.

Continuation of The Furniture Worker. V.12 contains also The Furniture Worker, v.39, no. 1-2.

—American Homes Bureau Annual Reference Book.

Chicago, Ill., American Homes Bureau, 1926. v.2.

A reference book for the furniture trade, with lists of manufacturers, wholesalers and jobbers, etc.

Architecture francaise, L'.

Monuments historiques du XIe siecle jusqu'a nos jours. Paris, Armand Guerinet, [1900?] 12v. [832 plates].

Interiors with furniture and exteriors.

Arkwright, John Peter, ed.

Cabinet-Making for Amateurs: A practical handbook on the making of various articles of furniture, by various hands. London, L. Upcott Gill, [1898].

Arte y decoration en Espana:

Arquitectura, arte decorativo. v.1-7, 9. Barcelona, Casellas Moncanut Hnos, 1917-25, 8v. [756 plates].

Interiors and exteriors.

Arts and Crafts Exhibition Society, London.

Arts and Crafts Essays. Preface by William Morris, New York, The Century Co., 1893.

Chapters on furniture.

Audsley, George Ashdown, 1838—, and Berthold.

Amateur Joinery in the Home; the practical manual for the amateur joiner on the construction of articles of domestic furniture. Boston, Small, Maynard & Co., 1916.

Avery Architectural library.

See Columbia University.

Baggatti Valsecchi, Giuseppe.

La casa Artistica Italiana: La casa Bagatti Valsecchi in Milano, architettura a interni nello stile del quattrocento e del cinquecento di Fausto e Giuseppe Bagatti Valsecchi di Belvignate, arredi dal secolo XIV al XVI: porte, camini, sculture, soffitti, mobili, intagli, brinzi, armi, ferri, maioliche, gioielli, avori, vetri, ricami, arazzi, cuoi, miniature, quadri, affreschi, istr. musicali, etc. . . . prefazione e note di P. Toesca. Milan, Ulrico Hoepli, [c.1918]. [160 plates].

The illustrations show many interiors with furniture.

Bajot, Eduard. 1853—

Collection de meubles anciens: releves, d'apres les originaux, a l'echelle de 10 cent. pour metre. Paris, Charles Schmid, [1900?] 2v. (Musees de Louvre et de Cluny.) [Plates].

—Du choix et de la disposition des ameublements de style: Etude des meubles au point de vue de leur destination variee depuis les salles d'apparat jusqu'aux petits appartements dans lesquels se traduisent toutes les exigences de la vie privee deux cent vingt documents, dessins de Ch. Kreutzberger . . . ces etudes comprennent vingt interieurs d'appartement . . . Paris, Chaux, [1880?].

Relates to the period 1422 to 1814.

—Encyclopedie du meuble du XVe siecle jusqu'a nos jours. Paris, Charles Schmid, [1900?] 18 pts. [531 plates.]

Two thousand pieces of furniture are shown in this collection of plates, classified and arranged in alphabetical order. This is one of the most important works on furniture in the library.

—French Styles in Furniture and Architecture. 1,500 examples of structural and ornamental details of original work in Gothic, Francois I, Henri II, Henri III, Tenri IV, Louis XIII, Louis XIV, Louis XV, Louis XVI, Empire Moderne; 60 plates chronologically arranged. New York, Paul Wenzel, [1900?]. [60 plates].

--Motifs Louis XVI . Paris, Charles Schmid, [1900?]. [60 plates].

Of special interest to wood carvers and designers.

—Petits meubles. Paris, Charles Schmid, [1900?]. [Plates].

Chiefly desks, tables and bookcases.

—Profils et tournages: recueil de documents de styles, gothique, Francois I, Henri II, Henri III, Henri IV, Louis XIII, Louis XIV, Louis XV, Louis XVI, Empire, Moderne. Paris, Charles Schmid, [1900?]. 2v. [Plates].

Details for the designer and wood carver.

Baneat, Paul.

Le mobilier breton (ensembles et details). Paris, Ch. Massin & Cie, [1925?] (Collection de l'art regional en France.) [40 plates].

Baroggio, Alexander.

Two Hundred Seating Furniture in Historical Styles. Photographic reproductions from rare and characteristic specimens of chiefly English, French, Italian, Flemish, Spanish and partly Oriental origin, from original photographs; collected, classified and practically arranged. New York, A. Gerbel, [1909?]. [Fifty plates, with explicate notes].

Barr, James, architect.

Anglican Church Architecture, with Some Remarks Upon Ecclesiastical Furniture. 2d ed. Oxford, J. H. Parker, [1843].

Bates, Charles Austin, 1866—, ed.

The Furniture Book. New York, C. A. Bates Syndicate, [c1899]

How to advertise a furniture store.

Bayard, Emile, 1868—

L'art de reconnaitre les styles; architecture, ameublement. Paris, Garnier freres, [1910].

From the times of Ancient Egypt to the present.

Bedroom Furniture Designs,

With scale drawings, cutting lists and directions. London, Evans Bros, [1900?].

Bell, J. Munro.

Chippendale, Sheraton and Hepplewhite Furniture Designs. London, Gibbings, 1900.

Chiefly a book of reproduced illustrations.

Benn, H. P., and Baldock, W. C.

Characteristics of Old Furniture: Styles in England, 1600-1800. London, Simpkin, Marshall, Hamilton, Kent & Co., [1908?].

Benn, R. Davis.

Style in Furniture. London, Longmans, Green & Co., [1904]. English and French furniture, Seventeenth to the Nineteenth centuries.

Berkey & Gay Furniture Co., Grand Rapids.

Antique Furniture in Carved Oak and Mahogany. Grand Rapids, n.d.

—Berkey & Gay furniture. [Grand Rapids, c1916]. [87 plates].

Illustrations of furniture for various rooms in a number of different English periods.

—The Story of Span-Umbrian Furniture: How the art of Renaissance Spain lives anew. [Grand Rapids, Mich. c1917].

—The style of Knolesworth. [Grand Rapids, c.1917].

Berlage, H. P.

Over stijl in bouw—en meubelkunst. 4th ed. Rotterdam, W. L. and J. Brusse's uitgeversmaatschappij, 1921.

From Ancient Greece to Louis XVI.

Bertin, Louis

Chambres Louis XVI. Le Mans, Raymond Bilard, [1920-]. [28 plates].

—Compositions nouvelles de meubles de tous styles: Supplément a l'Art et la science du meuble. Le Mans, Raymond Bilard, [1920 ?] [56 plates].

Contains measured drawings.

—Meubles ornés de bronzes, style Louis XVI. Dourdan (Seine-et-Oise), Emile Thezard, [1909 ?] [32 colored plates]. (Bibliothèque de l'ameublement.)

Bertin, Louis, and Compagnon, L.

Documents pratiques d'ameublement: Ebenisterie, sculpture, tournage. Paris, E. Thezard, [1900 ?]. 2v. [Plates]. (Bibliothèque de l'ameublement.)

—Recueil de meubles simples de tous styles Dourdan (Seine-et-Oise, E. Thezard, [1900 ?]. [Plates].

Biegler, J. H.

Neue Postermobel. Berlin, Ernst Wasmuth, [1900 ?]. [50 plates].

Chairs, davenport, etc.

Binstead, Herbert Ernest, 1869—

Furniture. New York, Sir Isaac Pitman and Sons, [1900 ?]. (Pitman's Common Commodities and Industries.)

For the general reader. Elementary in its treatment, with brief descriptions of the recognized styles.

—The Furniture Styles, with chapters on modern mission and craftsman furniture, by J. Newton Nind . . . and Gustav Stickley . . . Chicago, Trade Periodical Company, 1909.

—Useful Details in Several Styles. London, A. H. Botwright, 1906.

Contents:

Gothic; Moorish; Francis I; Henri II; Henri IV; Modern French; Louis XIV; Regency; Louis XV; Louis XVI; Empire; English Renaissance; Elizabethan; Jacobean; Chippendale; Sheraton; Hepplewhite; Adam.

Blake, John Percy, 1874—

Chippendale and His School. New York, Frederick A. Stokes Co., [1913]. (Little books about old furniture).

Blake, John Percy, 1874—, and Reveirs-Hopkins, A. E., 1863—

English Furniture. New York, Frederick A. Stokes Company, [1911] 2v. (Little books about old furniture.)

1. Tudor to Stuart.
2. The Period of Queen Anne.

Blanc, Charles, 1813-1882.

Grammaire des arts decoratifs: Decoration interieure de la maison. New ed. Paris, Henri Laurens, 1900.

Interior decoration of the home, with chapters on furniture.

Block, Emil.

Farbig bemalte Mobil. Munich, Georg D. W. Callwey, 1922. [10 colored plates].

Bobrinskii, Aleksiei Aleksandrovich, graf.

Volkstumliche Russische Holzarbeiten. Moscow, 1910, [163 plates]

Russian text. Part of this work is on furniture.

Bode, Wilhelm, 1845—

Die italienischen hausmobil der renaissance, mit 100 abbildungen. 3 tausend. Leipzig, H. Seemann nachfolger, [1902].

Bond, Francis.

Wood Carvings in English Churches. New York, Henry Frowde, 1910, 2v.

Contents:

1. Misericords from the Thirteenth to the Seventeenth centuries.
2. Stalls and tabernacle works; bishop's thrones and chancel; chairs.

Bowers, R. S., and Bovingdon, John.

Furniture Making; designs, working drawings, and complete details of 170 pieces of furniture, with practical information on their construction. With 1,082 illustrations. London, New York [etc.], Cassell & Co., Ltd. [1920].

Boyd, Thomas M., 1860—

Worship in Wood; illustrations by Harold Smalley. Chicago, Ill., American Seating Co., 1927.

A history of the furniture used in worship by various religious from the earliest times. The book was printed in Grand Rapids.

Brackett, Oliver.

Thomas Chippendale: A study of his life, work and influence. London, Hodder and Stoughton, [1924].

—An Encyclopedia of English Furniture; a pictorial review

of English furniture from Gothic times to the mid-Nineteenth century. London, Ernest Benn, Ltd., 1927. [Plates].

Braund, John.

Illustrations of Furniture, Candelabra, Musical Instruments, Etc., from the great exhibitions of London and Paris, with examples of similar articles from royal palaces and noble mansions. London, J. Braund, 1858.

For the use of designers and manufacturers.

Breuer, Robert.

German Arts and Crafts at the Brussels Exhibition, 1910. Stuttgart, Julius Hoffman, [1910].

Chiefly on furniture and interiors.

Briere, Gaston. 1871—

Le chateau de Versailles: Architecture et decoration. Paris. Librairie centrale des beaux-arts. [1910?] 2v. [200 plates].

Brigham, Louise.

Box Furniture: How to make a hundred useful articles for the home. New York. The Century Co. 1915.

For the amateur furniture maker.

Brown, Richard.

The Rudiments of Drawing Cabinet and Upholstery Furniture: Comprehending, concise, and explicit instructions for designing and delineating the different articles of those branches perspectively and geometrically . . . illustrated by appropriate diagrams. London. Published by the author, 1920. [Plates partly colored].

A book for the designer.

Bryant, Frederick J. 1889—

Working Drawings of Colonial Furniture . . . Peoria, Ill., The Manual Arts Press [c1922].

Designed for use in schools—from the manual training point of view.

Burbank, Emily.

Be Your Own Contractor. New York, Dodd, Mead & Co., 1924.

A book for the home maker, with chapters on furniture.

Burgess, Frederick William.

Antique Furniture. London. George Routledge & Sons, 1915.

English, French and American furniture (chiefly English) of the Sixteenth, Seventeenth and Eighteenth centuries.

Butler, Ellis Parker, 1869—, and Wilson, Britain B.

The French Decorative Styles from the Earliest Times to the

Present Day: A hand-book for ready reference. New York, T. A. Cawthra & Co. [c1904].

From 476 to about 1900.

Byrne, Arthur.

Spanish Interiors and Furniture: Photographs and drawings . . . with brief text by Mildred Stapley. New York, W. Helburn, Inc. [c.1921]. 3v. in 2. [300 plates].

Cabinetmaker Diary and Furnishers' Compendium. London, Benn Brothers, 1925-1926. 2v.

Cadres et bordures de tableaux de la fin du XVI siecle au premier empire; 62 planches (cent quatre-vingt-cinq motifs) precedees d'une notice historique. Paris, A. Calavas [1910] [62 plates].

Frames for mirrors, pictures, etc.

Candee, Helen Churchill. 1861—

Decorative Styles and Periods in the Home. New York, Frederick A. Stokes Co., [1906].

From the earliest times to l'art nouveau.

—Jacobean Furniture and English Styles in Oak and Walnut. New York, Frederick A. Stokes Co., [1916].

Carpet and Upholstery Trade Review.

v.41-43, 45 plus. 1920-23, 24-25 plus. 4v. New York, Review Publishing Co.

The Furniture Trade Review and Interior Decorator merged with Carpet and Upholstery Trade Review, November, 1920.

Carrick, Alice Van Leer. 1875—

The Next-to-Nothing House. Boston, The Atlantic Monthly Press [c1922].

'Chapters on furniture for certain rooms. Popular in treatment.

Century Furniture Co., Grand Rapids.

Dutch Seventeenth Century: a Century Production. Grand Rapids, Century Furniture Co., 1928.

—English Sixteenth Century: a Century Production. Grand Rapids, Century Furniture Co., [1926?].

—French Provincial Furniture Made in Grand Rapids. Grand Rapids, Century Furniture Co., [1926?].

—Furniture as Interpreted by the Century Furniture Co. Grand Rapids, Mich., Century Furniture Co., [c1926].

—Old English Mahogany Furniture: Century Productions. Grand Rapids, Century Furniture Co., [1926].

Productions inspired by Chippendale, Hepplewhite, Sheraton, and Duncan Phyfe.

—William and Mary Dining Group in the Manner of Daniel



Marot: A Century production. Grand Rapids, Century Furniture Co., [c1927].

Cescinsky, Herbert. 1875—

Chinese Furniture, a series of examples from collections in France, with an introduction, with 54 collotype plates and 10 half-tones. London, Benn Brothers, Ltd., 1922.

—English Furniture of the Eighteenth Century. London, George Routledge & Sons. [1911] 8v.

Illustrations from drawings and photographs.

—The Old World House, Its Furniture and Decoration. London, A. & C. Black, Ltd., 1924. 2v.

"I have written this book as a guide to those who desire to furnish their houses with English furniture of the Seventeenth and Eighteenth centuries."—Author's preface.

Cescinsky, Herbert, and Gribble, Ernest R.

Early English Furniture and Woodwork . . . London, G. Routledge & Sons, Ltd., 1922. 2v.

English furniture from the earliest times to the end of the Seventeenth century.

Chambres a coucher et cabinets de toilette.

Paris. Charles Schmid, editeur. [1905?]. (Concours d'Installations de chambres d'hôtels organisé par l'Automobile-club de France.) [24 plates].

Furniture for hotels.

Chambres de bon gout,

Par un comite de dessinateurs. Paris. Charles Moreau. [1920?] [20 plates].

Bedroom furniture.

Champeaux, Alfred de. 1833—

Le meuble. Paris, Maison Quantin, [1885] 2v.

Contents:

1. Antiquite, moyen age et renaissance.
2. XVIIe, XVIIIe, et XIXe siecles.

Champier, Victor. 1851—

Les industries d'art a l'Exposition universelle de 1900. Paris, Bureaux de la Revue des arts decoratifs. 1902, 2 v. in 1. [Plates and illustrations].

Most of part I is devoted to furniture.

—Le mobilier flamand. Paris, Ch. Massin & cie., [1925]. (Collection de l'art regional en France). [40 plates].

Champion, Georges.

Suggestions d'interieurs modernes. Paris, Ch. Massin & cie., [1920?] [32 plates].

Chancellor, Alfred Ernest.

Examples of Old Furniture, English and Foreign. London, B. T. Batsford, 1898.

Gives the dimensions of the furniture illustrated.

Charles, C. J.

Old English Interiors. 3d ed. New York, John Lane Company, 1919.

Popular in style. Contains much on furniture.

Chateau de la Malmaison.

Texte historique et descriptif, ornee de 100 planches en heliotypie, donnant plus de 200 documents dessines spécialement pour la famille imperiale par Percier et Fontaine. Paris, Charles Foulard, [1909].

Contains some furniture.

Chippendale, Thomas. 1718-1779.

Furniture Designs, arranged by J. Munro Bell, with an introduction and critical estimate by Arthur Hayden. London, Gibbings & Co., 1910.

—The Gentleman and Cabinet-Makers's Director; being a large collection of the most elegant and useful designs of household furniture in the Gothic, Chinese and modern taste . . . to which is prefixed a short explanation of the five orders of architecture and rules of perspective, with proper directions for executing the most difficult pieces, the mouldings being exhibited at large and the dimensions of each design specified. London, Printed by the author, [1754].

This is the first edition of the most famous book on furniture ever published. It contains 160 engraved plates.

—Vorbilder fuer kunst-und moebeltischler im Gothischen, Chinesischen und Rococo-stil. [Gentlemen's and Cabinet-Maker's Director]. Berlin, Ernest Wasmuth, 1896.

Translation with 200 plates from the 3d edition of Chippendale's great work as published in London in 1762.

Choix de meubles et ornements modernes en bois sculpte.

D'apres les compositions de messieurs les professeurs les plus estimes de Venise, Milan, Naples, Turin, Messine, Florence, etc. Paris, Andre, Daly fils & cie., [1884]. (Exposition Italienne de Turin, 1884.) [25 plates].

Church, Ella Rodman. 1831—

How to Furnish a Home. New York, D. Appleton & Co., 1881.

There are chapters on furniture, discussed by rooms.

Chute, Freeman Guy, 1885—

Projects in Woodwork and Furniture Making. Bellingham, Wash., State Normal school, [c1918].

Measured drawings for the use of manual training teachers.

## Clifford, Chandler Robbins, 1858—

The Decorative Periods. New York, Clifford & Lawton, 1906.  
From 4000 B. C. to the end of the Nineteenth century. Furniture is an important feature of the book.

—Period Furnishings; an encyclopedia of historic furniture, decorations and furnishings, fully illustrated. New York, Clifford & Lawton [c1914].

From 4000 B. C. to the end of the Nineteenth century.

## Clouston, K. Warren.

The Chippendale Period in English Furniture, with illustrations by the author. London, Debenham & Freebody [etc.], New York, E. Arnold, 1897.

From Sir William Chambers to Sheraton.

## Clouston, R. S.

English Furniture and Furniture Makers of the Eighteenth Century. London, Hurst & Blackett, Ltd., 1906.

## Clouzot, Henri.

Les meubles du XVIII<sup>e</sup> siecle. Paris, Albert Morance, [c1922]. (Archives de l'amateur et du professional.)

French furniture only.

## Clute, Eugene.

The Treatment of Interiors. New York, The Pencil Points Press, 1926. (The Pencil Points Library.)

Furniture plays a prominent part in this book.

## Colas, Louis.

Le mobilier basque (ensemble et details). Paris, Ch. Massin & cie., [1925?]. (Collection de l'art regional en France.) [40 plates].

## Columbia University. Avery architectural library.

Catalogue of the Avery architectural library, a memorial library of architecture, archaeology, and decorative art. New York, Library of Columbia college, 1895.

Contains many works on furniture.

## Complete Cabinet-Maker and Upholsterer's Guide:

Comprising the rudiments and principles of cabinet-making and upholstery with familiar instructions. London, Dean and Munday, [1829].

A handbook for the manufacturer and artisan.

## Contet, F., 1873—

Les sieges d'art epoques Louis XIV, Louis XV, Louis XVI et empire . . . bergeres, canapes, chaises, fauteuils, marquises, etc. Paris, F. Contet, 1913. (Le mobilier d'art francais au xvii<sup>e</sup> et au xviii<sup>e</sup> siecles.) [50 plates].

Cook, Clarence, 1828-1900.

House Beautiful: Essays on beds and tables, stools and candlesticks. New York, Scribner, Armstrong & Co., [c1877].

Cornelius, Charles Over, 1890—

Early American Furniture. New York, The Century Co., [c.1926].

This story of the changes which overtook the utilitarian art of American furniture design and manufacture constitutes a revealing record of the civilization which lies at the basis of the present United States of America.—Author.

—Furniture masterpieces of Duncan Phyfe, measured detail drawings by Stanley J. Rowland. Garden City, New York. Published for the Metropolitan Museum of Art by Doubleday, Page & Co., 1922.

Cornelsen, R.

Moderne amerikanische Sitzmoebel: Sitzmoebel aller Art mit sichtbaren Holztheilen, wie solche in den Vereinigten Staaten in der Neuzeit ausgefuehrt werden. Berlin, Bruno Hessling, [1897]. [45 plates].

Cox, John Charles, 1843—

Bench-Ends in English Churches, with 164 illustrations. London, New York [etc.], H. Milford, Oxford University Press, 1916.

Historical and descriptive discussion, by counties of England.

—English Church Fittings, Furniture and Accessories . . . with an introduction by Aymer Vallance, New York, G. P. Putnam's Sons, [1923].

—Pulpits, Lecterns and Organs in English Churches. London, Oxford University Press, 1915. (Church art in England.)

Cox, John Charles, 1843—, and Harvey, Alfred.

English Church Furniture, with 121 illustrations. New York, E. P. Dutton & Co., 1907.

Crater & Holt, Grand Rapids.

One hundred designs with full details of "easy-to-make" furniture. [Grand Rapids, Dean-Hicks Co., c1913].

Crawshaw, Fred Duane, 1874—

Furniture Design for Schools and Shops. [2d ed.] Peoria, Ill., The Manual Arts Press, 1915.

—Problems in Furniture Making. [3d ed.] Peoria, Ill. Manual Arts Press, [c.1906].

For students and amateurs.

Cremer and Wolffenstein, ed.

Der innere Ausbau: Sammlung ausgefuehrter Arbeiten aus allen Zweigen des Baugewerbes. Berlin, Ernest Wasmuth, [1900?-1912]. 5v. in 12. [476 plates].

Contents:

- 1-2. Der innere Ausbau.
3. Der innere Ausbau: Laden- und Geschaefteinrichtungen.
4. Der innere Ausbau: Treppen, Decken, Thueren, Fenster, Waende und Kamine. 5 pts.
5. Der innere Ausbau: Geschaefte- und Ladeneinrichtungen, Treppen, Decken, Thueren, Fenster, Waende und Kamine. 4 pts.

Contains a considerable number of measured drawings.

Davidson, Ellis A.

Drawing for Cabinet-Makers. 4th ed. London, Cassell & Co., Ltd., n.d. (Cassell's technical manuals.)

Davillier, Jean Charles, baron, 1823-1883.

La vente du mobilier du chateau de Versailles pendant la terreur: Documents inedits. Paris, Auguste Aubry, 1877.

Dean, Ben H. 1890—

The Awakening of Steve Randall: A story of a run-down furniture store and how it was rejuvenated. [Grand Rapids, Mich.] Grand Rapids Association of Furniture Exhibitors. [c.1913].

Dean, Ben H., 1890, and Peterson, Walter J.

Modern American Period Furniture; a guide to the selection of harmonious furnishings for the American home of today. Grand Rapids, Mich., Periodical Publishing Co., [1917].

This volume contains a style chart.

Decoration interieure allemande

et les metiers d'art a l'exposition de Bruxelles, 1910. Stuttgart, Julius Hoffman, [1910?].

Some of the illustrations are in colors.

Decorative Furnisher, The.

v.12—. 1907—. New York, Cawthra & Co., Inc.

Decorative Furnisher Directory and Buyers' Guide.

1917-21, 25-27, New York, Cawthra & Co., Inc. 8v.

Deiningner, Johann W.

Kunstschatze aus Tirol, Heliogravuren nach Photographischen aufnahmen von Otto Schmidt, 2d ed. Vienna, Anton Schroll, 1894-1902. 4v. [120 plates].

Contents:

1. Malerische Innenraume.
2. Architektur und Kunstgewerbe.
3. Malerei und Plastik.
4. Malerische Innenraume, neue Folge.

The plates show many interior with furniture.

—Tiroler Volkskunst: Bauerliche Architektur, Wohnraume, Getafel, Mobilien, Gerate und Erinnerungszeichen. Innsbruck, Max Schammler, [1920?].

Colored illustrations—some of furniture.

Denning, David.

The Art and Craft of Cabinet-Making: A practical handbook to the construction of cabinet furniture, the use of tools, formation of joints, hints on designing and setting out work, veneering, etc. New York, Sir Isaac Pitman and Sons, Ltd., [1923?].

This book is written from the British point of view.

Deshairs, Leon, 1874—

XVIIIe siecle, epoque de Louis XV: Nicolas et Dominique Pineau: 208 dessins. Paris, D. A. Longuet, [1910?] (Dessins originaux des maitres decorateurs. Les dessins du Musee et de la bibliotheque des arts decoratifs, Palais du Louvre, Pavillon de Marsan.) [100 plates].

Designs for Cabinetmakers.

n.p.p. [1860?] [Plates]

Working details for the designer.

Designs of Inigo Jones and Others.

[London?, I. Ware, 1743?].

Designs of interest to wood carvers—chiefly mantles and chimney pieces.

Details of Cabinet Construction.

London, Evans Bros, Ltd., [1918].

A book for the practical woodworker.

Deutsche Tischelermeister, Der.

v.14-31. 1908-1925, Berlin, Stephen Schmidt. 13v. in 20.

Contains views of many modern German interiors.

Deutsches Kungstgewerbe, St. Louis, 1904.

Berlin, Ernst Wasmuth, [1904?] [Plates].

Illustrated account of the German exhibit at the St. Louis Exposition.

Deville, Jules, 1825—

Mobel und Decoration in allen Stylen vom Alterthum bis zur Jetztzeit. Zugleich als zweite Auflage des Atlas zum "Dictionnaire du Tappissier". Berlin, Claesen, [1894?] [124 plates in colors].

Dewey, G. Ernest.

Evolution of Furniture: Sample Furniture Co., Grand Rapids, Mich., Dean-Hicks Printing Co., 1901.

An elementary book on styles, with prices of reproduced pieces at the time of publication.

**Dexter, George Blake.**

The Lure of Amateur Collecting. Boston, Little, Brown & Co., 1923.

Part of this book is on collecting furniture.

**Dilke, Emilia F. S., 1840-1904.**

French Furniture and Decoration in the XVIIIth century. London, George Bell & Sons, 1901.

**Dining-Room Furniture Designs.**

With scale drawings and working details. London, Evans Bros, [1919?] (Woodworker series.)

**Dohme, Robert, 1845—, ed.**

Moebel aus den koeniglichen Schloessern zu Berlin und Potsdam. Berlin, Ernest Wasmuth, 1886-1889, 2v. [50 plates].

**Domenech, Rafael, and Perez Bueno, Luis.**

Muebles antiguos espanoles. Barcelona, M. Bayes, [1920?] [60 plates].

**Downing, Andrew Jackson, 1815-1852.**

The Architecture of Country Houses; including designs for cottages, farm-houses, and villas, with remarks on interiors, furniture, and the best modes of warming and ventilating. New York, D. Appleton & Co., 1851.

**Dreyfus, Carle.**

The Louvre Museum: French furniture . . . Louis XVI period. New York, Brentano's [c1921]. (Documents d'art.) [51 plates].

—Musée du Louvre: le mobilier français, époques de Louis XIV et de Louis XV. Paris, Albert Morance, [c.1921]. (Documents d'art) [51 plates].

**Dumonthier, Ernest, 1863—**

French garde meuble: The Louis XVI furniture chests of drawers, commodes and corner pieces. Paris, Albert Morance. [c1922]. [56 plates].

—Le meuble-toilette, toilettes-poudreuses, toilettes-coiffeuses portatives, miroirs, psyches. Styles Louis XV, Louis XVI, premier et second empire. [Paris] A. Morance [c1923]. [48 plates].

—Mobilier national de France: les sieges de Jacob freres, époques du Directoire et du Consulat. Paris, A. Morance, [c1921]. (Documents d'art). [42 plates].

—Les plus beaux meubles des ministères et administrations publiques: lits et lits de repos . . . lettre-preface de M. Paul Leon. Paris. A. Morance, [1920?]. [44 plates].

—Les tables, tables à la Grecque, tables-consols, tables à ouvrage, tables à dessin, gueridons . . . Styles Louis XVI et premier empire. [Paris], A. Morance, [c1924]. [58 plates].

Duncan, J. Hudson Elder. 1877—

The House Beautiful and Useful; being practical suggestions on furnishing and decoration. London, Cassell & Co., 1907.

Contains chapters on old and modern furniture.

Dupezard, Emile. 1847—

Le Palais-Royal de Paris: Architecture et decoration, de Louis XV a nos jours. Paris, Ch. Eggimann, [c1911]. [124 plates].

Contains interiors with furniture.

Du Pont, Maurice.

Les meubles de la Chine (deuxieme serie), cinquante-quatre planches accompagnees d'une preface et d'une table descriptive. Paris, A. Calavas, [1920?]. [54 plates].

Dyer, Walter Alden. 1878—

Creators of Decorative Styles; being a survey of the decorative periods in England from 1600 to 1800, with special reference to the masters of applied art who developed the dominant styles . . . Illustrated with 64 full pages of photographs. Garden City, New York, Doubleday Page & Co., 1917.

"The greater portion of the material in this book appeared originally in the form of a series of magazine articles in Arts and Decoration, with the exception of the chapter on Jean Tijou, which appeared in the Art World."

Contents:

The development of applied art in England.—Inigo Jones.—Daniel Marot.—Sir Christopher Wren.—Grinling Gibbons.—Jean Tijou.—Thomas Chippendale.—Sir William Chambers.—Robert Adam.—Josiah Wedgwood.—George Hepplewhite.—Thomas Sheraton.

—Early American Craftsmen. New York, The Century Co., 1915.

Contents:

The Vogue of Americana.—Samuel McIntire, master carpenter.—The Exquisite Furniture of Duncan Phyfe.—American Windsor Chairs.—The Clockmakers of Connecticut.—The Willards and Their Clocks.—Baron Stiegel and His Glassware.—The Versatile Paul Revere.—Other American Silversmiths.—American Pewterers and Brasiers.—Early American Potters.—The Potters of Bennington.—American Furniture Makers.—Other Crafts and Craftsmen.

—Handbook of Furniture Styles . . . being an abridged guide to the more important historic styles of furniture, especially intended for ready reference, including chronological tables, bibliography and index. New York, The Century Co., 1918.

—The Lure of the Antique; being a book of ready reference for collectors of old furniture, china, mirrors, candlesticks, silverware, pewter, glassware, copper utensils, clocks and other household furnishings of our American forefathers,



and a handy guide for the determination of age, style, maker, genuiness, and value, illustrated with 159 photographs. New York, The Century Co., 1910.

Most of the material in this volume originally appeared in *Country Life in America*.

Eastlake, Charles Lock, Jr. 1793-1865.

*Hints on Household Taste in Furniture, Upholstery, etc.*, ed. by C. C. Perkins. 4th American ed. Boston, James R. Osgood Co., [c1872].

This volume indicates the popular taste of half a century ago.

Eberlein, Harold Donaldson.

. . . *Interiors, Fireplaces and Furniture of the Italian Renaissance*. New York, The Architectural Book Publishing Co., 1916.

—*Spanish Interiors, Furniture and Details, from the Fourteenth to the Seventeenth century, with an introduction*; 136 plates with more than 450 photographs. New York, Architectural Book Publishing Co., Inc., [pref. 1915].

Eberlein, Harold Donaldson, and others.

*The Practical Book of Interior Decoration*; with 7 plates in colour, 283 in doubletone, and a chart. Philadelphia and London, J. B. Lippincott Co., 1919.

Contains much material on furniture in England, Italy, Spain and France, from the Sixteenth century to the present.

Eberlein, Harold Donaldson, and McClure, Abbot.

*The Practical Book of Period Furniture, Treating of Furniture of the English, American Colonial and Post-Colonial and Principal French Periods*. With 250 illustrations, the colour plate and text illustrations from drawings by Abbot McClure. Philadelphia & London, J. B. Lippincott Co., 1914.

From Jacobean, 1603, to American Empire, 1830.

Edis, Robert W. 1839—

*Decoration and Furniture of Town Houses*. London, Kegan Paul & Co., 1881.

Based on a series of lectures before the Royal Society of Arts of London in 1880.

Ellwood, G. M.

*English Furniture and Decoration, 1680-1800*. v.1. London, B. T. Batsford, [c1899]. 1v.

—*English Furniture and Decoration, 1680-1800*. 3d ed. London, B. T. Batsford, [1909?].

Elwell, Newton W., comp.

*Architecture, Furniture, and Interiors of Maryland and Virginia During the Eighteenth Century*. [Plates]. Boston, Geo. H. Polley & Co., [c1897].

—Colonial Furniture and Interiors. Boston, Geo. H. Polley & Co., [c1896] [Plates]

Of special interest to the antiquarian and architect.

## English Chairs.

With specimens illustrating the various periods from the Fifteenth to the Nineteenth century, with an introduction by Herbert E. Binstead. London, John Tiranti & Co., 1923.

## English Household Furniture.

Mainly designed by Chippendale, Sheraton, Adam, and others of the Georgian period. One hundred plates, illustrating 348 examples. Boston, Bates & Guild Co., 1900.

Portfolio.

## Fales, Winnifred Shaw. 1875—

A Simple Course in Home Decorating. Boston, Small, Maynard & Co., [c1923].

Chapters on period furniture and decoration.

## Falke, Otto von, and Schmitz, Herman, ed.

Deutsche Möbel vom Mittelalter bis zum Anfang des 19. Jahrhunderts, Stuttgart, Julius Hoffman, [1923-24]. 3v. (Bauformen-Bibliothek. v.14, 18, 20).

Contents:

1. Deutsche Möbel des Mittelalters und der Renaissance.
2. Deutsche Möbel des Barock und Rokoko.
3. Deutsche Möbel des Klassizismus.

## Fashionable Furniture.

A collection of 350 original designs representing cabinet work, upholstery, and decoration, by various designers, including 100 sketches by the late Bruce James Talbert. New York, J. O'Kane, [1870?]. [116 plates].

Interesting as showing the vogue in furniture 60 years ago in the United States.

## Felice, Roger de.

. . . French Furniture in the Middle Ages and Under Louis XIII, translated by F. M. Atkinson. London, W. Heinemann, Ltd., 1923. (Little illustrated books on old French furniture. 1.)

—French Furniture Under Louis XIV, tr. by F. M. Atkinson. New York, Frederick A. Stokes Co., [1922]. (Little illustrated books on old French furniture. 2.)

—French Furniture Under Louis XV, tr. by Florence Simmonds. London, W. Heinemann, 1920. (Little illustrated books on old French furniture. 3.)

—French Furniture Under Louis XVI and the Empire, tr. by F. M. Atkinson . . . New York, Frederick A. Stokes Co., [1921?]. (Little illustrated books on old French furniture. 4.)

Fenn, Frederick, and Wyllie, B.

Old English Furniture. London, G. Newnes, [1904]. (Newnes' library of the applied arts.)

From the Tudor period to Hepplewhite, with chapters on furniture in oak, walnut, mahogany, satinwood, painted furniture, etc.

Ferrari, Giulio.

Il legno e la mobilia nell' arte italiana: la grande scultura e la mobilia della casa. 2d ed., enl. New York, E. Weyhe, [1920?]. (Collezione artistica Hoepli.)

Many of the plates are of special interest to woodcarvers.

Ferree, Barr.

American Estates and Gardens. New York, Munn & Co., 1906.

Contains many interiors showing furniture.

Feuchere, Leon.

L'art industriel, recueil de dispositions et de decorations interieures; comprenant des modeles pour toutes les industries d'ameublement et de luxe, tels que boiseries, tentures . . . jardinières, volières, etc., etc., gravees par Varin Freres et precedees d'une introduction sur l'application de l'art a l'industrie. New York, Goupil et cie, [1890?].

Fleury, Gaston.

Decors et ameublements au gout du jour. Paris, Ch. Massin et cie, [1912?]. [32 plates].

Foley, Edwin.

The Book of Decorative Furniture, Its Form, Colour and History . . . with 100 reproductions in full-colour facsimile of drawings by the author, and 1,000 text illustrations; correlated charts of British woodwork styles and contemporaries; decorative furnishing accessories; principal trees, etc. New York, G. P. Putnam's Sons, 1911-12. 2v.

All countries, from the earliest times to 1815.

Folnesics, Josef.

Innenraume und Hausrat der Empire und Biedermeierzeit in Osterreich-Ungarn. 4th ed. Vienna, Anton Schroll & Co., 1920. [68 plates].

Fontainebleau.

1-2 serie. 2v. Paris, C. Eggimann, [c1910]. (Les grands palais de France.) [200 plates].

Contents:

1. Les appartements de Napoleon Ier et de Marie Antoinette, styles Louis XV, Louis XVI, Empire.
2. Les appartements d'Anne d'Autriche de Francois Ier et d'Elenore la Chapelle, styles Renaissance, Henry IV, Louis XIII, Louis XIV.

**Form ohne Ornament, Die:**

Werkbundaussstellung 1924. Stuttgart, Deutsche Verlags-Anstalt, 1924. (Bücher der Form. v.1.)

Partly devoted to furniture.

**Fourdinois, Henri.**

Nouveau recueil d'ameublements: meubles, sieges, lits, tentures, tapisseries, etc. Paris, May & Motteroz. 2v. [200 plates].

The plates are exceptionally fine specimens of printing.

**Foussier, E.**

L'appartement français à la fin du XIXe siècle. Paris, E. Thezard, fils, [1900?]. (Bibliothèque de l'ameublement.) [Plates].

**French, Lillie Hamilton. 1854—**

Homes and Their Decoration. New York, Dodd, Mead & Co., 1903.

Furniture and decoration chiefly according to the rooms of the house.

**Frohne, Henry William. 1880—**

Home Interiors: Furnishing and decorating the home, suggestions for the selection and arrangement of furniture, rugs, and draperies and for the decorative treatment of floors, walls and ceilings in the home. Grand Rapids, Mich., Dean-Hicks Co., [c1916]. [50 plates].

**Furniture.**

v.1-2. 1909-12. 2v. in 1. Grand Rapids, Grand Rapids Furniture Record Co.

**Furniture and Its Story.**

[London, Evans Bros., 1915]. (Woodworker series).

From the earliest times to the time of Napoleon.

**Furniture Commercial Agency Co., publisher.**

Reference Book. v.22. Cincinnati, 1899.

A rating book of manufacturers and dealers of furniture in its various branches, in the United States.

**Furniture Gazette, The.**

An illustrated [weekly] journal, treating of all branches of cabinet-work, decoration, upholstery, and drapery, n.s. v.2-8. 1874-77. 7v. London, Furniture Gazette.

**Furniture Journal.**

v.15, 25-30 plus. 1901-06. 1909 plus. 7v. Chicago, American Furniture Mart.

**Furniture Manufacturer and Artisan.**

New series, v.1-30 plus. 1911-1925 plus. 26v. in 17. Grand Rapids, Periodical Publishing Co.

For the manufacturing end of furniture.

**Furniture Record.**

v.54 plus. 1925 plus. Grand Rapids, Periodical Publishing Co.  
Continuation of Grand Rapids Furniture Record.

**Furniture Record Directory.**

Of furniture manufacturers of the United States and Canada  
. . . an invaluable guide to the buyer. Grand Rapids,  
Periodical Publishing Co., 1920.

**Furniture Retailer and House Furnisher.**

v.1-3. 1913-14. 3 v. in 1.

Grand Rapids, Dean-Hicks Co.

Continued as Good furniture.

**Furniture Trade Review and Interior Decorator.**

v.25-40. 1905-1920. 16 v. in 25. New York, Review Publishing Co.

Merged with Carpet and Upholstery Trade Review, Nov. 1920.

**Furniture Worker.**

v.54-72. 1909-22. 18v. Cincinnati, O., Spokesman Publishing Co.

v.66-72 old series is v.33-39 of new series. v.39, no. 1-2 bound with American Furniture Manufacturer, v.12.

Continued as American Furniture Manufacturer.

**Furniture World.**

v.1-62 plus. 1895-1926 plus. 62 v. New York, Towse Publishing Co.

The volumes of this set, beautifully bound in half morocco, were bequeathed to the Library by John M. L. Towse the founder and editor.

**Gade, Felix,**

Collecting Antiques for Pleasure and Profit; the narrative of 25 years search for antique furniture, prints, china, paintings and other works of art, copiously pictured with many fine examples. London, T. W. Laurie, Ltd., 1922.

English furniture of the Seventeenth and Eighteenth centuries.

**Gallerey, G.**

Meubles simples. [Paris], Armand Guerinnet, n.d. [56 plates].  
(Materiaux et documents d'art decoratif).

Examples chiefly of the Renaissance.

Gamle Hjem i Sonderjylland, Holsten og den gamle Hansestad Lubek.

Copenhagen, E. Jespersens forlag, [1915?]

Architecture, interiors and furniture of Northern Germany.

Garrett, Rhoda. 1841-1822, and Agnes.

Suggestions for House Decoration in Painting, Woodwork and Furniture. Philadelphia, Porter & Coates, 1877.

Garside, Joshua T.

Old English Furniture, a View of Its Characteristics from Tudor Times to the Regency, for the Use of Collectors, Designers and Students . . . with numerous illustrations from the author's measured drawings and sketches, and from photographs. London, B. T. Batsford, Ltd., [1924].

Contents:

1. The oak period, 1500-1630.

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**Grand Rapids Furniture Record.**

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Giving names and locations of manufacturers, jobbers, importers and selling agents. New York city, Clifford & Lawton, 1922, 1925-27.

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*English Furniture at a Glance: a simple review in pictures of the origin and evolution of furniture from the Sixteenth to the Eighteenth centuries*. London, The Architectural Press, 1924.

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*Italian Renaissance Interiors and Furniture*. New York, William Helburn, [1875?]. [50 plates].

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*Les beaux meubles des collections privées: 156 reproductions presentées avec une introd.* Paris, Ch. Massin, [1918?]. [52 plates].

*Furniture of the periods of Louis XIV, Louis XV and Louis XVI*.

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*The Cabinet-Maker and Upholsterer's Guide; or, Repository of Designs for Every Article of Household Furniture, in the*

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—Louis XV mobil des Musee des arts decoratifs in Paris. 2d ed. Leipsic, [B. Hessling, 1914?]. [36 plates].

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### Hirth, Georg.

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### Hjorth, Herman.

Reproduction of Antique Furniture. Milwaukee, Wis., The Bruce Publishing Co., [c1924].

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### Hogdson, Frederick Thomas, 1836—.

The Practical Cabinetmaker and Furniture Designer's Assist-

ant, with essays on history of furniture, taste in design, color and materials, with full explanation of the canons of good taste in furniture. Chicago, Frederick J. Drake & Co., [c1910].

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The Practical Book of Furnishing the Small House and Apartment, with 9 illustrations in colour, 198 in double-tone and 7 diagrams. Philadelphia & London, J. B. Lippincott Co., 1922.

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—The Practical Book of Learning Decorations and Furniture, with 180 illustrations. Philadelphia & London, J. B. Lippincott Co., 1926.

### Hope, Thomas. 1770-1831.

Householder Furniture and Interior Decoration, Executed from Designs. London, Longman, Hurst, Rees and Orme, 1807.

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### Household Conveniences.

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Chiefly on homemade furniture, from the rural outlook.

### Howe, Lois Lilley, and Fulley, Constance. 1886—

Details from Old New England Houses Measured and Drawn. New York, The Architectural Book Publishing Co., 1913.

Contains details of a number of furniture pieces.

### Hunt, Thomas Frederick.

Exemplars of Tudor Architecture, adapted to modern habitations, with illustrative details selected from ancient edifices, and observations on the furniture of the Tudor period. London, Longman, Rees, Orme, Brown, and Green, 1830.

Chapters on furniture.

### Hunter, George Leland. 1867-1927.

Decorative Furniture; a picture book of the beautiful forms of all ages and all periods: Egyptian, Assyrian, Greek, Roman, Byzantine, Japanese, Persian, Romanesque, Gothic, French Renaissance, Italian Renaissance, later Italian, Louis XIII, XIV, XV, XVI, Directoire and Empire, Spanish, Portuguese, Flemish, Dutch, Swiss, Elizabethan, Jacobean, Charles II, William and Mary, Queen Anne, Early Georgian, Chippendale, Adam, Hepplewhite, Sheraton,

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- Inside the House that Jack Built. The story, told in conversation, of how two homes were furnished. New York, John Lane Co., 1914.
- Italian Furniture and Interiors. v.1-10. New York, William Helburn, [c1917-18]. 10v. in 1. [200 plates].

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Measured Drawings of Old Oak English Furniture, also of some remains of architectural woodwork, plasterwork, metalwork, glazing, etc. London, B. T. Batsford, 1902.

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## Hyatt, Lloyd F.

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## Innen-Dekoration.

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## Interieur, Das.

Wiener Monatshefte für Wohnungsausstattung und angewandte Kunst. v.7-11. 1906-10. 5v. Vienna, Anton Schroll & Co.

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## Jackson, Alice F. and Bettina.

How to Select Furnishings for the Home. Grand Rapids, Mich., Good Furniture Magazine, [1918?]. 2v.

## Jacquemart, Albert. 1808-1875.

Histoire du mobilier: Recherches et notes sur les objets d'art qui peuvent composer l'ameublement et les collections de l'homme du monde et du curieux, avec une notice sur l'auteur par M. H. Barbet de Jouy, contenant plus de 200 eaux-fortes typographiques par Jules Jacquemart. Paris, Librairie Hachette et cie, 1876.

- A History of Furniture, tr. from the French, ed. by Mrs. Bury Palliser. London, Chapman and Hall, 1878.

## Jakway, Bernard C.

*The Principles of Interior Decoration.* New York, The Macmillan Co., 1922.

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## Jeans, Herbert.

*The Periods in Interior Decoration; a practical guide, (with a chapter on the progress of paperhanging in England, by Metford Warner.)* London, The Trade Papers Publishing Co., Ltd.; New York, "The Painters' Magazine", 1921.

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## Johnson, William. 1862—

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## Jonge, C. H. de, ed.

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## Jonquet, A.

*Original Sketches for Art Furniture, in the Jacobean, Queen Anne, Adams, and Other Styles.* London, B. T. Batsford, 1879.

## Jourdain, Margaret.

*English Decoration and Furniture of the Early Renaissance (1500-1650), an Account of Its Development and Characteristic Forms.* London, B. T. Batsford, Ltd., [1924]. (The library of decorative art).

—*English Decoration and Furniture of the Later XVIIIth Century (1760-1820): An Account of Its Development and Characteristic Forms.* New York, Charles Scribner's Sons, [1922]. (The Library of Decorative Art.)

## Kellogg, Alice Maude. 1862—

*Home Furnishing, Practical and Artistic.* New York, Frederick A. Stokes Co., [c1905].

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## Kelly's Directory.

Of the cabinet, furniture and upholstery trades, and other trades connected therewith, in England, Scotland and Wales, and the principal towns in Ireland, The Channel Islands and Isle of Man. v.9-10. London, Kelly's Directories, Ltd., 1921-1925. 2v.

## Kimerly, William Lowing. 1870—

*How to Know Period Styles in Furniture: A brief history of furniture from the days of ancient Egypt to the*

present time, illustrated with over 300 typical examples and a brief description of each period. Grand Rapids, Mich., Grand Rapids Furniture Record Co., 1912.

King, Thomas.

King's Designs for Cabinetmakers and Upholsterers: [London, 1835?] n.t.p. [50 plates].

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Sammlung von Altaren, Kanzeln, Taufbacken, Beicht—und Kirchenstuhlen, Orgeln, u.s.w. Berlin, Ernst Wasmuth, [1893]. [60 plates].

Kirkpatrick, Arthur, 1868—.

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Koch, Alexander, 1860—.

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Kuhnt, Fr.

Moderne Zimmer-Einrichtungen. n.t.p. [Dresden, Bleyl and Kaemmerer, 1882].

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Laking, Guy Francis. 1875—.

The Furniture of Windsor Castle. Published by command of His Majesty King Edward VII. London, Bradbury, Agnew & Co., 1905.

English and continental furniture from about 1640 to 1902.

Lambert, A., and Stahl, E.

Das Mobil: Ein Musterbuch stilvoller Mobil aus allen Landern in historischer Folge. Stuttgart, Julius Hoffman, [1897?].

Lambert, Theodore.

L'art decoratif moderne. Exposition universelle de 1900:

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Contains some furniture.

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Le Blanc, L.

Meubles flamands du XIV<sup>ème</sup> au XVII<sup>ème</sup> siècle. n.p.p. [1910?] 2v. [60 plates].

Le Clerc, Leon.

Le mobilier normand (ensemble et details). Paris, Ch. Massin & cie, [1925?]. (Collection de l'art regional en France). [40 plates].

Leixner, Othmar.

Geschichte des Mobiliars und die Möbelstile (Entwicklung von Wohnung und Raumkunst). 3d ed., rev. and enl. Berlin, Richard Carl Schmidt & Co., 1923.

From the earliest times to the present.

Lelong, Mme, Camille.

Catalogue des objets d'art et d'ameublement des xvi<sup>ème</sup> et xviii<sup>ème</sup> siècles, anciennes porcelaines de Sevres . . . tapisseries des Gobelins et des Beauvais, tableaux anciens oeuvres remarquables de Beechey, Boilly, Boucher . . . estampes françaises et anglaises du xviii<sup>ème</sup> siècle, imprimées en noir et en couleur, dependant des collections de Mme. C. Lelong. [Paris, Georges Petit, 1903]. 3v.

Lenygon, Francis.

The Decoration and Furniture of English Mansions During the Seventeenth and Eighteenth Centuries. London, T. Werner Laurie, 1909.

—Furniture in England from 1660 to 1760. New York, Charles Scribner's Sons, [1914].

Chapters in Dutch, French, Venetian, Chinese, and Gothic influences.

Lessing, Julius.

Gothische Möbel. Berlin, Ernst Wasmuth, 1889. (Vorbilder-Hefte aus dem Kgl. Kunstgewerbe-Museum zu Berlin. Heft 8) [14 plates].

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—Italienische Truhen, XV-XVI. Jahrhundert. Berlin, Ernst

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- Moebel aus der Zeit Louis XVI. (Zopfstil). Berlin, Ernst Wasmuth, 1898. (Vorbilder-Hefte aus dem Kgl. Kunstgewerbe-Museum zu Berlin. Heft 21.) [12 plates].
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Contents:

1. XVI.-XVII. Jahrhundert, by J. Lessing.
2. XVII.-XIX. Jahrhundert, by J. Lessing.
3. XVI.-XVIII. Jahrhundert, by G. Swarzenski.
4. Vornehmlich XIX. Jahrhundert, by G. Swarzenski.

Libonis, L.

L'ornement d'apres les maitres. Paris, H. Laurens, [1897]. [Plates].

Furniture and other ornaments.

Litchfield, Frederick. 1850—.

How to Collect Old Furniture. London, George Bell & Sons, 1904.

Furniture of European countries from the time of the Renaissance. Contains a chapter on "faked" furniture.

—Illustrated History of Furniture from the Earliest to the Present Time. 2d ed. London, Truslove and Shirley, 1892.

—Illustrated History of Furniture, from the Earliest to the Present Time. Containing 400 illustrations or representative examples of the different periods. 7th ed., rev. and considerably enl. London, Truslove and Hanson, Ltd., [1922].

Lockwood, Luke Vincent. 1872—.

Colonial Furniture in America. New York, Charles Scribner's Sons, 1901.

—Colonial Furniture in America. New and greatly enl. ed., with 867 illustrations of representative pieces. New York, Charles Scribner's Sons, 1913. 2v.



--Colonial Furniture in America, 3d ed. Supplementary chapters and 136 plates of new subjects have been added to this edition which now includes over a thousand illustrations of representative pieces. New York, C. Scribner's Sons, 1926. 2v.

--The Furniture Collectors' Glossary. [Limited ed.]. New York, Walpole society, 1913.

--The Pendleton Collection. [Providence, R. I.]. Rhode Island School of Design, 1904. [102 plates].

This work is essentially a catalogue of this wonderful collection given to the Rhode Island School of Design by Mr. Charles L. Pendleton.

## Lockwood, Sarah M.

Antiques. Text illustrations by Ernest Stock; wrapper and lining drawings by Ilonka Karasz. Garden City, New York, Doubleday, Page & Co., 1926.

Deals with early American furniture from 1620 to about 1850.

## Loftie, William John. 1839-1911.

Plea for Art in the House. Philadelphia, Porter & Coates, 1876.

Contains a chapter on furniture and furnishing.

## London Cabinet-Makers' Book of Prices.

For the most improved extensible dining tables, with illustrative engravings. London. Printed for a committee, 1821.

Bound with London cabinet-makers' union book of prices. 1824.

## London Cabinet-Makers' Union Book of Prices.

By a committee of masters and journeymen. 2d ed. London, Stephen Couchman, 1824.

## London Chair-Makers' and Carvers' Book of Prices.

For workmanship as regulated and agreed to by a committee of master chair manufacturers and journeymen. London, T. Sorrell, 1823.

Bound with the above is a Supplement published in 1808 and a second Supplement published in 1811. Whether the 1823 edition listed above is a reprint of the original edition of 1802 or whether 1823 is a misprint has not been determined. The collation appears to be that of the 1802 edition.

## London Society of Cabinet-Makers.

The cabinet-makers' London book of prices and designs of cabinetwork, calculated for the convenience of cabinet-makers in general, whereby the price of executing any piece of work may be easily found . . . containing . . . various designs intended as a guide towards the prices . . . 3d ed., with additions. London, C. Barber, 1803.

Bound with the above is a Supplement by George Atkinson and William Somerville published in 1805.

Longnon, Henri Auguste, and Huard, Frances Wilson.

French Provincial Furniture, foreword by Richardson Wright . . . with 71 illustrations and a map. Philadelphia and London, J. B. Lippincott Co., 1927.

Lostalot de Bachoue, Alfred de. 1837—.

Les arts du bois (sculpture sur bois—meubles). Paris, J. Rouam, [1890?]. (Dessins et modeles.) [Plates].

Louandre, Charles Leopold. 1812—.

Les arts somptuaires: Histoire du costume et de l'ameublement et des arts et industries qui s'y rattachent, dessins de C. Ciappori. Paris, Hangard-Mauge. 1857-58. 4v. in 3.

Contents:

1. pt. 1-2. Introduction generale. 2v. in 1.
2. pt. 1. Planches du Ve au XIVe siecle.
2. pt. 2. Planches du XVe au XVIIe siecle.

Lovell, R. Goulburn.

Home Interiors: A practical work on colour, decoration and furnishing. London, Caxton Publishing Co., Ltd., [1915?]. 5v. [73 plates].

Illustrated by large facsimile water color drawings, working detail plans, etc.

Lubke, Wilhelm.

Ecclesiastical Art in Germany During the Middle Ages, translated from the fifth German edition with appendix by L. A. Wheatley. 4th ed. Edinburgh, Thomas C. Jack, 1877.

Two-thirds of this book is devoted to church furniture.

Luthmer, Ferdinand. 1842—.

Deutsche mobil der vergangenheit, mit 142 abbildungen. 3. tausend. Leipzig, H. Seemann nachfolger, [1902?].

From the Middle Ages to the time of Napoleon.

—Sammlung von innenraumen, Mobeln, und Gerathen im Louis-seize-und Empire-stil aus Schlossern und Kirchen zu Kassel, Wilhelmshohe and Wurzburg, Frankfurt, Heinrich Keller, 1897. [30 plates].

Luthmer, Ferdinand, and Schmidt, Robert.

Empire- und Biedermeiermobil aus Schlossern und Burgerhausern. Frankfurt am Main, Frankfurter Verlags-Anstalt A.-G., [1922].

Lyon, Irving Whitall.

The Colonial Furniture of New England: A study of the domestic furniture in use in the Seventeenth and Eighteenth centuries. Boston, Houghton, Mifflin & Co., 1892.

McClure, Abbot.

Making Built-in Furniture. New York, McBride, Nast & Co., 1914.

Chiefly for the amateur craftsman.

McClure, Abbot, and Eberlein, Harold Donaldson.

House Furnishing and Decoration. New York, McBride, Nast & Co., 1914.

For the home maker, especially the newly married.

Macquoid, Percy.

A History of English Furniture, with plates in colour after Shirley Slocombe. London, Lawrence & Bullen, 1904-08. 4v.

Contents:

1. 1500-1600. The age of oak.
2. 1660-1720. The age of walnut.
3. The age of mahogany.
4. The age of satinwood.

Macquoid, Percy, and Edwards, Ralph.

The Dictionary of English Furniture from the Middle Ages to the Late Georgian Period . . . with a general introduction by H. Avray Tipping, v.1-2 [A-M]. New York, Charles Scribner's Sons, 1924. 2v.

Magne, Henri Marcel. 1877—.

Les chefs d'oeuvre du style Louis XVI: premiere serie, decorations interieure. Paris, R. Ducher, [1910?]. [40 plates].

—Le mobilier francais; les sieges. Paris, H. Laurens, [c1920]. [90 plates].

Mahogany Association, Inc., New York.

Historic Mahogany: Monograph: Period Mahogany. New York, Mahogany Association, Inc., [1924?].

Gives the characteristic forms and designs of some of the great designers who used mahogany from the time of Chippendale.

Maillard, Elisa.

Old French Furniture and Its Surroundings (1610-1815) . . . tr. by MacIver Percival. New York, Charles Scribner's Sons, 1925.

Mallett, W. E.

An Introduction to Old English Furniture, illustrations by H. M. Brock. London, Georg Newnes, [1905]

"Written from the furniture dealer's point of view. There are 168 illustrations, with brief notes." From the Tudor period of about 1820.

Mantel, Alexander.

Mobel in einfachen und edlen formen, 40 entwurfe. Darmstadt, A. Koch, [c1921].

Contains a number of scale drawings.

Markward, Frank.

Building a Furniture Business. Grand Rapids, Mich., Grand Rapids Furniture Record Co., 1911.

For the furniture merchant.

Marshall, Arthur.

Specimens of Antique Carved Furniture and Woodwork, Measured and Drawn. London, W. H. Allen, 1888. [Plates].

English carved furniture dating from the Fifteenth to the Eighteenth centuries.

Maskell, Alfred.

Wood Sculpture. New York, G. P. Putnam's Sons, [1911]. (The Connoisseur's Library.)

Chiefly on wood sculpture, from the early Middle Ages to the end of the Eighteenth century, in the countries of Europe.

Contains much material relating to church furniture.

Mayer, Joseph.

Decorative Designs Suitable for Furniture. v.2-3. [Munich. J. C. Hochwind, 1870?]. 2v.

Details for the designer.

Melani, Alfredo.

Mobili e ambienti moderni. Nuova serie. tavole in colori e a piu colori sviluppi geometrici in iscala. Milan, Ulrico Hoepli, [1920?]. [100 plates].

Modern Italian furniture.

Menuisier en meubles, contenant vingt planches.

n.t.p. [1750?]

Eighteenth century French furniture, with patterns for cutting the wood, etc.

Merlin, Th.

Ameublement pratique de tous styles. 2e partie details des planches. Paris, Ch. Claesen, [1880?]. [50 plates].

Detailed drawings for the designer.

—Le meuble a la mode, comprenant chambres a coucher, salles a manger, bureaux et salons, dessins executes a 10c pour metre. [Limited ed. no. 35. Paris, Ch. Claesen], 1904. [56 plates].

Meuble a l'epoque Louis XVI.

D'apres l'oeuvre grave des principaux maitres De la Fosse, Ranson, Liard, etc. Paris, Charles Foulard, [1908?]. 5v. in 1. [120 plates].

## Meubles d'art nouveau au salon du mobilier de 1902.

Dourdan (Seine-et-Oise), E. Thezard, [1902?]. (Bibliothèque de l'ameublement.) [Plates].

## Meubles et objets de gout, 1796-1830:

678 documents tirés des Journaux de modes et de la "Collection" de la Mesangère, préface et notice par M. Paul Cornu. Paris, A. Calavas, [1900?]. [112 plates].

French furniture, etc., entirely. Some of the plates in colors.

## Meyer, Alfred Gotthold, 1864-1909, and Graul, Richard.

. . . Tafeln zur geschichte der mobelformen . . . Leipzig, K. W. Hiersemann, [1902-1911]. 10v. [120 plates].

Shows the development of various articles of furniture from the earliest times.

## Contents:

Serie 1. Schemel. Stuhl.—2. Bank. Sofa.—3. Bett. Wiege.—4. —Tischformen.—5. Truhen.—6-7. Schrankformen.—8. Spiegel. Rahmen.—9. Uhren.—10. Englisches mobiliar.—Supplement —serien 11-12. Mobiliar von 1789-1840, empire und biedermeierstil.

## Meyrick, Sir Samuel Rush. 1783-1848.

Specimens of Ancient Furniture Drawn from Existing Authorities by Henry Shaw, with descriptions. London, Henry G. Bohn, 1866.

Furniture in collections, in England dating earlier than the Eighteenth century.

## Migeon, Gaston. 1861—, and Dreyfus, Carle.

Meubles et objets d'art de la collection Camondo. (Musée du Louvre). Paris, Albert Levy, [1920?]. [70 plates].

## Millar, Donald.

Colonial Furniture, Measured Drawings. New York, Architectural Book Publishing Co., Inc., 1925. [31 plates].

## Mobilier d'églises.

Specimens des divers styles depuis le XI<sup>e</sup> siècle jusqu'à nos jours. Paris, Ducher & Co., 1881. 2v. in 1. [Plates].

## Contents:

1. Ouvrages en bois.
2. Ouvrages en pierre, en marbre, et en fer.

## Mobilier des palais de Versailles et des Trianons:

Styles Louis XIV, Louis XV, Louis XVI et empire. Paris, Ch. Eggimann, [c1911]. (Les grands palais de France.) [120 plates].

## Modern Furniture Designs, Adapted from the English Periods.

London, J. Tiranti & Co., 1922.

Jacobean period to the present time.

## Moebel und Zimmereinrichtungen der Gegenwart:

Eine Sammlungen von Moebeln, Decorationen und Wohnraeumen in allen Stilarten. Berlin, Ernst Wasmuth, 1898. 2v. [200 plates].

## Mohr, Christian.

Catalog de ausgewählten Sammlung von antiken Mobeln und Ausstattungsgegenständen . . . Versteigerung zu Koln den 24. October, 1888 . . . durch J. M. Heberle (H. Lempertz' Sohne) . . . Cologne, Steven, printer, 1888.

Gives the dimensions of many of the pieces catalogued.

## Molinier, Emile. 1857-1906.

Les meubles du moyen age & de la renaissance, les sculptures microscopiques, les cires. Paris, E. Levy et cie, [1897].

—Le mobilier au XVIIe et au XVIIIe siecle et pendant les premieres annees du 1er empire. Paris, E. Levy, [1898].

—Le mobilier royal francais aux XVIIe et XVIIIe siecles: historie et description. nos. 9-10. Paris, Goupil & cie., 1902. 10 v. in 2. [200 plates].

A magnificent work.

## Moore, Frank Frankfort. 1855—.

The Commonsense Collector; a handbook of hints on the collecting and the housing of antique furniture, with 52 illustrations. London, Hodder and Stoughton, 1910.

## Moore, Mrs. N. Hudson.

The Collector's Manual. New York, Frederick A. Stokes Co., [1906].

Contents:

Tables and sideboards; English pottery and porcelain; chairs and sofas; antique glassware; chests and cupboards; brass and copper utensils; old-fashioned bedsteads; lustre ware; old-fashioned timepieces; desks and secretaries; old pewter; bureaus; cottage ornaments.

—The Old Furniture Book, with a sketch of past days and ways, with 112 illustrations. New York, Frederick A. Stokes Co., 1913.

European and American furniture.

## Morgan Woodwork Organization.

Building with Assurance. Chicago, [c1921].

—Building with Assurance. 2d ed. Chicago, [c1923].

Illustrations show many interiors with furniture.

## Morse, Frances Clary.

Furniture of the Olden Time. New York, Macmillan, 1902. New ed. 1917.

Furniture of the American colonists and the early period of the United States as a nation.

Moussinac, Leon, 1890—.

Croquis de Ruhlmann. Paris, Albery Levy, [c1924]. (Collection documentaire d'art moderne.) [54 plates].

—Interieurs, v.1-3, publiees sous la direction et avec une introduction. Paris, A. Levy, [c1924-25]. 3v. [163 plates].

Mueller, Samuel and Vogelsang, Wilhelm.

Hollandische Patrizierhauser: Utrecht, A. Oosthoek, 1909. [40 plates].

Seventeenth and Eighteenth centuries.

—Het Oud-Hollandsche huis: Utrecht, A. Oosthoek, 1909. [40 plates].

Seventeenth and Eighteenth centuries.

Mulliner, Herbert Hall. 1861—.

The Decorative Arts in England, 1660-1780. London, B. T. Batsford, Ltd., [1924?].

About a third of this volume relates to furniture.

Musees et Palais Nationaux: Mobilier.

D'art conserve au Louvre, Garde-meubles, Versailles, Elysee, Fountainbleau, etc., des epoques Gothique, Renaissance, Louis XIII, Louis XIV et Louis XVI. Paris, [1900?]. 4v. in 5. [300 plates].

Contents:

1. Sieges, fauteuil canapes, ecrans, consoles, etc.
2. Meubles sculptes et l'ebenisterie.
3. Bronzes, appliques, flambeaux, cartels, vases, chenets, pendules, lustres, etc. 2 pts.
4. Tapisserie etoffes.

Muthesius, Hermann.

De Innenraum des englischen Hauses. Berlin, Ernst Wasmuth, 1905. (Das englische Haus. v.3.)

National Association of Furniture Manufacturers.

Annual Meeting, Chicago, 1916.

National Retail Furniture Institute.

Proceedings of the third session January 18-23, 1926. Grand Rapids, The Furniture Record, 1926.

Nelson-Matter Furniture Company, Grand Rapids.

Photographs of Furniture Made by Nelson-Matter Furniture Co., [Grand Rapids, 1876-1900]. 25v.

These are the sample books carried for a quarter of a century to the retail furniture trade of the country by Mr. M. L. Fitch of Grand Rapids.

—Photographs of Furniture made by Nelson-Matter Furniture Co.: Office desks. [Grand Rapids, 1890-91?]. 2v.

Sample books of Mr. M. L. Fitch.

Nelson-Matter & Co., Grand Rapids.

[Wholesale Price List, with illustrations. Grand Rapids, 1876].

Nesbit, Wilbur Dick. 1871—.

The Story of Berkey & Gay, a Corporation Which Is a Part of American History. [Grand Rapids, Mich., Berkey & Gay Furniture Co., 1912?].

A reprint with additions from Munsey's magazine of September, 1911.

New York—Metropolitan Museum of Art.

American Wing. A handbook of the American Wing, by R. T. H. Halsey and Charles O. Cornelius. 3d ed., with corrections. New York, The Museum, 1926.

—Hoentschel Collection.

Collections Georges Hoentschel: Notices de Andre Perate et Gaston Briere. Paris, Librairie centrale des beauxarts, 1908. 4v. [255 plates].

Contents:

1. Moyen age et renaissance: Le marbre et la pierre; Le bois, statues et groupes; Le bois, meubles, panneaux et frises; Tapisseries.
2. XVIIe et XVIIIe siecles: mobilier, boiserie.
3. XVIIIe siecle: mobilier, boiserie.
4. XVIIe et XVIIIe siecles: bronzes d'ameublement.

Chiefly French furniture.

New York City Public Library.

List of works relating to furniture and interior decoration. Reprint from the library's Bulletin of September, 1908. v.12, No. 9.

Northend, Mary Harrod. 1850—.

Colonial Homes and Their Furnishings. Boston, Little, Brown & Co., [c1912].

Nearly all the illustrations are of New England homes and furniture.

Novi, A.

Ensembles choisis: Mobilier decoration, nouvelles creations de gout moderne. Paris, Ch. Moreau, [1920?]. [32 plates].

Nutting, Wallace. 1861—.

Furniture of the Pilgrim Century, 1620-1720, including colonial utensils and hardware, illustrated with 1,000 photographs by the author hitherto unpublished. Boston, Marshall Jones Co., [c1921].

—A Windsor Handbook; comprising illustrations and descriptions of Windsor furniture of all periods, including side chairs, armchairs, comb-backs, writing-arm Windsors,



babies' high backs, babies' low chairs, child's chairs, also settees, love seats, stools and tables. Saugus, Mass., Wallace Nutting, Inc., [c1917].

Nye, Alvan Crocker.

A Collection of Scale-Drawings, Details, and Sketches of What Is Commonly Known as Colonial Furniture, Measured and Drawn from Antique Examples. New York, William Helburn, [c1895] [55 plates].

—Furniture Designing and Draughting: Notes on elementary forms, methods of construction and dimensions of common articles of furniture. New York, W. J. Comstock, 1900.

Odom, William Macdougall. 1884—.

A History of Italian Furniture from the Fourteenth to the Early Nineteenth Centuries. Garden City, New York, Doubleday, Page & Co., 1918-19. 2v.

Oetzmann & Co.

A Guide to House Furnishing. London, [1895?].

O'Kane, J., pub.

The Study-Book of Furniture and Furnishing; being a series of 56 plates of designs showing interiors, cabinet-work, upholstery and sundries. New York, J. O'Kane, [1880?]

The designs are by various persons of the period of publication.

Osburn, Burl N., and Bernice B.

Measured Drawings of Early American Furniture. Milwaukee, Wis., The Bruce Publishing Co., [c1926].

From 1630 to 1825. Chiefly for school use.

Otter, Paul Denniston. 1866—.

Furniture for the Craftsman; a manual for the student and mechanic, covering the design, construction and finishing of practically all the articles used in the furnishing and equipment of the modern home, porch and grounds with hints on upholstering. New York, David Williams Co., 1914.

Palmer, Oscar James.

Practical Inlay Work. Mangum, Okla., Peerless Publishing Co., 1916.

For the manual training teacher and student.

Pape, Jean, ed.

Der Mobeltischler der Renaissance. Dresden, Bleyl & Kaemmerer, [1884]. [60 plates].

The designs are of special interest to the wood carver.

Paris, William Francklyn . 1871—.

Decorative Elements in Architecture: Random observations on the eternal fitness of things from a decorative point of view. New York, John Lane Co., 1917.

Many illustrations of furniture.

Parsons, Frank Alvah. 1868—.

Interior Decoration; Its Principles and Practice. Garden City, New York, Doubleday, Page & Co., 1915.

Chapters on the historic art periods, showing furniture.

Payson, William Farquhar. 1876—, ed.

Mahogany, Antique and Modern; a study of its history and use in the decorative arts. New York, E. P. Dutton & Co., [c1926].

Contents:

In the Forest, by W. F. Payson.—Mahogany and the Cabinetmaker, by K. Schmieg.—Mahogany in Architecture, by K. M. Murchison.—Structural and Decorative Uses in Marine Architecture and Boat Building, by H. B. Culver.—The Piano and Its Prototypes, by Francis Morris.—Historic Furniture Styles, by C. O. Cornelius.—The Furniture of the Present Day, by R. Erskine.

Peabody, Henrietta C.

Inside the House Beautiful; a collection of interior views, showing furnishings and their arrangement. Boston, The Atlantic Monthly Press, [c1921].

Peacock, Edward. 1831—, ed.

English Church Furniture, Ornaments and Decorations, at the Period of the Reformation, as exhibited in a list of goods destroyed in certain Lincolnshire churches, A. D. 1566. London, John Camden Hotten, 1866.

Penderel-Brodhurst, James George Joseph, 1859—, and Layton, Edwin J.

A Glossary of English Furniture of the Historic Periods. London, J. Murray, [1925].

A dictionary of British furniture terms, with many brief biographies.

Per l'art, comp.

Mobili: camere da letto, sale da pranzo, salotti, ambienti vari. Turin, C. Crudo & Co., [1895?]. [90 plates].

Modern Italian furniture.

Percier, C., and Fontaine, P. F. L.

Innendecorationen Moebel und Geraethe. New ed. Berlin, Ernst Wasmuth, [1895?]. [Plates].

Gives details for the designer.

Percival, MacIver.

The Oak Collector: A guide to the collection of old oak and simple cottage furniture; with 60 illustrations. New York, Dodd, Mead & Co., [1925?].

—Old English Furniture and Its Surroundings, from the Restoration to the Regency. London, W. Heinemann, 1920.

Periodical Publishing Co., Grand Rapids.

The Furniture Show Window: The construction of the show window, the lighting of the show window and the store, examples of window displays. Grand Rapids, Periodical Publishing Co., [c1915].

Pfnor, Rodolphe. 1824—.

Architecture, decoration et ameublement époque Louis XVI: Dessins et graves d'après des motifs choisis dans les palais impériaux, le mobilier de la couronne les monuments publics et les habitations privées. New York, Bruno Hessling Co., Ltd., [1895?] [57 plates].

—Le mobilier de la couronne et des grandes collections publiques et particulières du xiii<sup>e</sup> siècle au xix<sup>e</sup> siècle, mobilier civil, mobilier religieux, meubles, tentures, tapisseries, bronzes et objets d'art de toutes les époques, accompagnés de dessins, grandeur d'exécution. Paris, Ch. Juliot, [1874-76]. 3v. [120 plates].

Phillips, R. Randal. 1878—, and Woolrich, Ellen.

Furnishing the House. London, "Country Life", Ltd. [etc.]; New York, C. Scribner's Sons, 1921.

For the home maker. Modern British point of view.

Phin, John. 1830—.

Hints and Practical Information for Cabinet-makers, Upholsterers, and Furniture Men. New York, Industrial Publication Co., 1884.

A book for the furniture worker.

Pick, Albert, & Co., Chicago.

Catalog C3. Furnishings and equipment for hotels, clubs, hospitals, institutions, public buildings, office buildings, apartment buildings, schools and colleges, steamships, restaurants, cafeterias, lunch rooms, delicatessen stores, bakeries, soda parlors, billiard parlors, barber shops, laundries. Chicago, Ill., A. Pick & Co., [c1919].

—Employe Betterment Book, a practical treatise on industrial lunchrooms, clubs, rest rooms and other industrial welfare projects. Chicago, A. Pick & Co., [c1920].

Pollen, John Hungerford. 1820-1902.

Ancient and Modern Furniture and Woodwork. London, Chapman & Hall, 1875.

Begins with the furniture of Egypt, Nineveh, and Greece.

Polley, George Henry. 1846—.

Domestic Architecture, Furniture and Ornament of England from the Fourteenth to the Eighteenth century; comprising photographic and measured drawings of exteriors, interiors and details. Boston, Geo. H. Polley & Co., [c1911]. [76 plates].

Polley, George H. & Co.

Eighteenth Century Architectural Ornamentation, Furniture and Decoration, by M. A. Pergolesi, and other eminent artists. Boston and New York, G. H. Polley & Co., [1885?].

Potter Homer D. 1878—.

Cost Finding Principles for Furniture Factories: A treatise on the principles which underlie all correct cost determination with explanations as to means of securing more accurate and analytical knowledge of costs. Grand Rapids, Mich., Periodical Publishing Co., [c1924].

Practical Collecting.

London, Hodder and Stoughton, Ltd., [1922?].

Chapters on oak, walnut and mahogany furniture.

Prignot, Eugene.

Moderne Sitzmobel. Berlin, Claesen, [1895?]. [25 plates].  
Nineteenth century.

Prignot, Eugene, and others.

L'ameublement moderne. Paris, Claesen, [1890?]. 2v. [144 plates].

The plates illustrate the work of the following designers: Prignot, Lienard, H. Coignet, F. Lenoir, Billet, R. Pfnor and E. Moraud.

Pugin, Augustus Charles, 1762-1832.

Gothic Furniture, consisting of 27 coloured engravings, with descriptive letterpress. London, R. Ackermann, [1827].

Pugin, Augustus Charles. 1762-1832, and Augustus Welby Northmore. 1812-1852.

Gothic Architecture Selected from Various Ancient Edifices in England: Complete reprint without text of "Specimens of Gothic Architecture", 2v., plates 1-113; "Examples of Gothic Architecture", 3v., plates 114-337, original ed. published 1821-1838. Cleveland, D. H. Dansen, 1914. 5v. in 2. [337 plates].

Contains plates on church furniture.

Quinn, Mary Josephine. 1877—.

Planning and Furnishing the Home, practical and economical suggestions for the home-maker. New York and London, Harper & Bros., [c1914].

Largely devoted to furniture.

Racinet, Albert Charles August. 1825—.

*Le costume historique . . . types principaux de vetement et de la parure, rapproches de ceux de l'interieur de l'habitation dans tous les temps et chez tous les peuples, avec de nombreux details sur le mobilier, les armes, les objets usuels, les moyens de transport, etc.* Paris, Firmin-Didot et cie., 1888. 6v. [Plates].

Contains a number of plates showing interior decoration and furniture. Over 300 of the illustrations are in colors.

Raeth, George Adolph.

*Home Furniture Making, for amateur wood workers, manual training schools and students.* Chicago, F. J. Drake & Co., [c1910].

Ransom, Caroline Louise.

*Studies in Ancient Furniture; couches and beds of the Greeks, Etruscans and Romans.* Chicago, The University of Chicago Press, 1905.

Raynall, Gustave.

*Le meuble au XXeme siecle.* Paris, Librairies Imprimeries Revnies, [1905?]. [30 plates in colors].

Redslob, Edwin, ed.

*Deutsche Volkskunst.* v.1-2. Munich, Delfhin Verlag, [1923-24]. 2v.

Remon, Georges.

*Interieurs d'appartements modernes.* Dourdan, E. Thezard, fils, [1905?]. [30 plates].

Colored illustrations of styles, chiefly French.

—*Meubles Louis XV.* Dourdan (Seine-et-Oise), E. Thezard, fils, [1900?]. (Bibliotheque de l'ameublement.) [Plates].

—*Meubles Louis XVI.* Dourdan (Seine-et-Oise), E. Thezard, fils, [1900?]. (Bibliotheque de l'ameublement.) [Plates].

—*Moderne Moebel.* Berlin, Ernst Wasmuth, 1894-1895, 1900. 5pts. [90 plates].

Contents:

1. Moebel in Empire-Stil.
2. Moebel in Englischen Stil.
3. Moebel in verschiedenen Stilen.
- 4-5. Moderne Innenraeume.

Rettelbusch, Ernst.

*Stil-Handbuch fur Raumausbau, Mobiliar und Ornamentik: Fuhrer durch alle historischen Stilarten des Altertums, Mittelalters, der Renaissance und Neuzeit bis Mitte des XIX. Jahrhunderts.* Nuremberg, Rettelbusch Verlag, [1924].

Reveirs-Hopkins, Alfred Edward, 1863—.

*The Sheraton Period: Post-Chippendale Designers, 1760-1820.* New York, Frederick A. Stokes Co., [1912].

Ricci, Seymour de. 1881—.

Louis XVI Furniture. New York, G. P. Putnam's Sons, [1913].

Richardson, Charles James. 1806-1871.

Studies from Old English Mansions: Their furniture, gold and silver plate, etc. London, T. McLean, 1841. [92 plates].

Richter, Gisela Marie Augusta. 1882—.

Ancient Furniture; a history of Greek, Etruscan and Roman furniture, with an appendix by Albert W. Barker. Oxford, The Clarendon Press, 1926.

Robie, Virginia.

Historic Style in Furniture. 2d ed. Chicago, The House Beautiful Co., 1910.

From the Middle Ages in Europe to Colonial times in America.

Robinson, Frederick S.

English furniture. London, Methuen & Co., [1905].

From Saxon times to the early Nineteenth century.

Robinson, G. T.

Our Household Furniture; Its Past History and Its Present Development. [1881].

Articles from The Art Journal.

Robinson, Vincent Joseph.

Ancient Furniture and Other Works of Art, illustrative of a collection formed by Vincent J. Robinson. London, Bernard Quaritch, 1902.

Furniture of various countries, chiefly European.

Roche, Denis. 1868—.

Le mobilier francais en Russie: Meubles des xvii<sup>e</sup> et xviii<sup>e</sup> siecles et du commencement du xix<sup>e</sup>, conserves dans les palais et les musees imperiaux et dans les collections privees, introduction historique et notices descriptives. Paris, Emile Levy, [1912-13]. 2v. in 4. [100 plates].

Roche, Odilon.

Les meubles de la Chine: preface et tables descriptive. Paris, A. Calavas, [1920?]. [54 plates].

Roe, Fred.

Ancient Coffers and Cupboards: their history and description from the earliest times to the middle of the Sixteenth century. London, Methuen & Co., 1902.

—A history of Oak Furniture. London, The Connoisseur, 1920. (The connoisseur series of books for collectors.) [Plates].

Various European countries from the Thirteenth century.  
—Old Oak Furniture. Chicago, A. C. McClurg, 1907.  
Chiefly English oak furniture.

Roger-Miles, Leon. 1859—.

- Le mobilier: Transformations progressives de l'antiquité au XIX<sup>e</sup> siècle. Paris, Edouard Rouveyre, [1900?]. (Comment discerner les styles: enseigne par l'image.) [Plates].  
—Objets d'art, de curiosité et d'ameublement. Paris, Edouard Rouveyre, [1900?] (Comment discerner les styles du VIII<sup>e</sup> au XIX<sup>e</sup> siècle. [Plates].  
—Le style Piranesi, époque Louis XVI. Paris, Edouard Rouveyre, [1900?]. (Comment discerner les styles: enseigne par l'image.) [Plates].

Roger-Miles, Leon. 1859—, and Rouveyre, Edouard.

- Comment devenir connaisseur; meubles & objets d'art ancien, bijoux, émaux, faïences, cristal de roche, étain, etc.; ouvrage accompagné de 1,337 illustrations. Paris, G. Baranger fils, 1906.

Rogers, John Charles.

- English Furniture, its essentials and characteristics simply and clearly explained for the student and small collector, with a foreword by H. Avray Tipping. London, "Country Life", Ltd., and G. Newnes, Ltd.; New York, C. Scribner's Sons, 1923.

Discusses oak, walnut and mahogany furniture of the periods from 1450 to the early Nineteenth century.

Rothery, Guy Cadogan. 1863—

- Chimneypieces and Ingle Nooks, Their Design and Ornamentation. New York, Frederick A. Stokes Co., [1911?].  
From ancient Greece and Rome to current practice.  
—Furnishing a Small House or Flat. London, W. Collins Sons & Co., Ltd., [c1913]. (Collins' practical home series.)  
For the homemaker.

Roubo, Andreas Jacob. 1739-1791.

- Die Kunsttischlerei. Berlin, Hessling and Spielmeier, [1894?] [Plates].

Ruchty, Max.

- Das Landhaus "Sanct Antonius": ein Künstlertraum: Architektur-Entwürfe, Innenräume und Einzelmöbel . . . Text von Fritz von Ostini. Darmstadt, Alexander Koch, 1918.

Rudd, J. H.

- Cabinet Making; principles of designing, construction and laying out work, with chapters by C. A. Zuppann and Walter K. Schmidt. [American ed.]. Grand Rapids, Mich., Grand Rapids Furniture Record Co., [c1913].  
—Practical Cabinet Making and Draughting. [English ed.]. London, Benn Bros, Ltd. 1922.

Principles of designing construction, and laying out of work, for furniture factories.

Sadleir, Thomas Ulick, and Dickinson, Page L.

Georgian Mansions in Ireland, with some account of the evolution of Georgian architecture and decoration. [Dublin], Printed for the authors at the Dublin University Press by Ponsonby & Gibbs, 1915.

Contains a number of views of interiors showing furniture.

Saglio, Andre. 1869—.

French Furniture. New York, Charles Scribner's Sons, [1907]. (Newnes' library of applied arts.)

Historical account, from the earliest times to the end of the Napoleonic period.

St. Johns Table Co., Cadillac, Mich.

The Margin of Success: Pete Bradley's hobby and a little of his biography told for men who sell furniture. Cadillac, Mich., Published by the company, [c1913].

St. Louis Furniture News.

v.38-39, 43-44, 46, 60. 1907-08, 10-12, 18-19. 6v. in 4. St. Louis, Furniture Gazette Publishing Co.

Saint-Sauveur, Hector.

Interieurs de style. Paris, Ch. Massin, [1910?]. (La decoration interieure en France.) [36 plates].

Salles a manger de bon gout dans les styles Louis XVI, directoire et moderne, par un comite de dessinateurs.

Paris, Charles Moreau, [1920?]. [20 plates].

Salon des industries du mobilier, Le:

Exposition organisee par la Chambre syndicale de l'ameublement au Grand Palais des Champs-Elysees, reproduction en phototypie des oeuvres des principaux exposants. Paris, Armand Guerinet, 1905. 4v. [396 plates].

Salvatore, Camillo, comp.

Italian Architecture, Furniture and Interiors During the Fourteenth, Fifteenth and Sixteenth centuries. Boston, Geo. H. Polley & Co., [c1904] [66 plates].

Salverte, Francois de, comte.

Les ebenistes du XVIIIe siecle, leurs oeuvres et leurs marques; ouvrage contenant un millier de notices presentees dans l'ordre alphabetique avec de nombreuses planches hors texte. Paris et Bruxelles, G. van Oest et cie., 1923.

Sample book of designs of looking glass frames, cornices, carved chimney-pieces, and other art specimens.

Birmingham, Lee Eginton, 1780.



## Sanders, William Bliss.

Examples of Carved Oak Woodwork in the Houses and Furniture of the Sixteenth and Seventeenth Centuries. London, Bernard Quaritch, 1883. [Plates].

Examples from England.

—Half-Timbered Houses and Carved Oak Furniture of the Sixteenth and Seventeenth centuries. London, Bernard Quaritch, 1894.

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PART XVI

*Glossary of Furniture Words  
and Terms*

*Compiled by Donna Duffield Warner*



# Glossary of Furniture Words and Terms

(NOTE) In the compiling of this glossary, special credit is given "A Glossary of English Furniture of the Historic Periods," by J. Penderel-Broadhurst and Edwin J. Layton; published by John Murray, London, 1925. Other words and terms have been gathered from standard works.

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**Abacus**—The uppermost member of the capital of a column.

**Acanthus**—A Greek conventional leaf ornament used as a decorative feature of carved furniture, and a characteristic of the Corinthian capital.

**Acorn Bulb**—A turned ornament resembling the acorn found on the legs of massive furniture.

**Acorn Turning**—Turned ornaments resembling the acorn, chiefly used on Jacobean chair backs.

**Acroteria**—Pedestals for statues, vases, or other ornaments.

**Act of Parliament Clock**—An oblong hanging clock with a glassless wooden dial. The origin of the name is uncertain.

**Adelphi**—Greek word meaning "brother". Used as a trade mark by the Adam brothers.

**Adelphi Duumvirate**—See Adelphi.

**Adze**—A hand cutting-tool having a curved blade at right angles with its handle, used for dressing timber, etc.

**African Fiber**—A twisted fiber made from palm leaves, used for stuffing in upholstering.

**Almery**—See Ambry.

**Almonry**—See Ambry.

**Amber**—A yellow mineral substance used as a decorative incrustation.

**Ambry**—A depository for goods, food, or money; a kind of cupboard. Eccl. A closet near the altar for sacred vessels.

**Amorini**—The Italian word for cupids.

**Andirons**—Metallic supports for holding burning logs on an open hearth.

**Angel-Bed**—A bedstead without posts.

**Animal Couchant Foot**—A leg termination in the form of a reclining animal.

**Animal's Head**—The head of an animal, especially the lion and ram, used as a projecting ornament on furniture.

**Annulets**—Encircling bands or fillets upon the lower part of capitals, especially used upon the Doric type.

**Antefix**—An upright ornament fixed to the corners of bed cornices.

**Anthemion**—Classical Greek honeysuckle pattern.

**Antique Furniture**—Old-fashioned or out-of-date furniture prized because of its historic value.

**Applied Mouldings**—Mouldings placed to give the effect of paneling; Jacobean ornament of the Seventeenth century.

**Applique**—An applied ornament.

**Apron**—A strip of wood extending along the seat-framing of a chair, the base of a cabinet, or the like.

**Arabesque**—Designs composed of floral and geometrical scrolls, and, during the Renaissance, of human and animal forms.

**Arca**—A chest for storing treasures.

**Arcade**—A carved decoration representing a series of arches supported on columns, or a chair back in this form.

**Arcature**—A series of small arches forming a small arcade, either blind or open.

**Arch**—A curved or pointed structure supported at the sides or ends only, used to span openings or spaces.

**Archadian Fountain**—A decorative design in the form of an urn with wide spread top usually ornamented with the acanthus leaf.

**Arched Stretcher**—An arch or hoop-shaped stretcher of the English Restoration period.

**Architects' Furniture**—Furniture of the Eighteenth century, designed by architects and therefore possessing architectural features.

**Architrave**—The lowest member of the entablature; also a door moulding.

**Archivolt**—Mouldings on the outer curve of an arch.

**Ark**—A chest.

**Armchair**—A chair with arms.

**Arm Lining**—A strip attached under an arm for upholstery purposes.

**Arm Panel**—Piece fixed to the front of an arm post for upholstery purposes.

**Arm Stump**—The support of an arm starting from the seat rail.

**Armoire**—A large wardrobe or cupboard during and after the Renaissance.

**Arm-Pads**—The upholstered part of chair arms.

**Arm-Supports**—The uprights which support the front end of chair arms.

**Armure**—A special weave of tapestry.

**Arras**—A tapestry much used for the drapery of beds, especially during the Fourteenth century.

**Arris**—The sharp or salient edge formed by two surfaces meeting each other; applied to the edges in mouldings, or to the ridges which separate the channels of a Doric column.

**Astragal**—A small convex moulding of rounded surface generally from half to three quarters of a circle; a moulding in the capital of the Ionic column.

**Atlantes**—Supporting columns in the form of men.

**Atlas**—A striped fabric with satin face and cotton back.

**Aubusson**—A figurative French tapestry.

**Auger**—A tool for boring holes in wood.

**Aumbry**—Same as Ambry.

**Aumerie**—See Ambry.

**Awl**—A pointed steel instrument for making small holes.

**Baby Cage**—A round framework placed upon castors, made for the purpose of holding a baby while learning to walk.

**Baby Chair**—A chair resembling a child's chair but lower with a strap or bar across the front, and often solid sides.

**Baby's High Chair**—A small armchair with high legs, usually spread, a foot rest near the seat and frequently a tray in front for food or toys.

**Back**—That part of a piece of furniture generally placed against the wall; except when placed forward, roughly finished. See Chair Back.

**Back Bar Frame**—See Back Partition Rails.

**Back Center Rail**—In reference to the frames of upholstered furniture, a strip connecting the back legs, over which the upholstery is drawn.

**Back Cross Rail**—Back section of drawer.

**Back Partition Rails**—Pieces running between the back post of a case to strengthen the frame and form horizontal divisions for drawers.

**Back Post Panel**—Strip covered with upholstery attached to back post.

**Back Rail**—A connecting piece of wood between the back posts of a case; in upholstered furniture frames, a rail between the two back legs.

**Back Rail Lining**—A strip for upholstery, attached between the top and center rails of the back leg of upholstered furniture frames.

**Back Saw**—A type of hand saw with a metal ridge along the back of the blade. This ridge or "back" prevents the saw penetrating beyond a certain depth.

**Back Splice**—The connecting of the two pieces of wood which usually form the back legs of upholstered furniture.

**Back-Stool**—An armless chair, usually upholstered.

**Back Stretcher**—In reference to the frame of an upholstered davenport, a strip of wood joining top and back rails, thus adding strength to the structure.

**Back Strip**—Strip attached to top rail of upholstered furniture frames for tacking upholstery.

**Bacon Cupboard**—A Seventeenth century, English cupboard, used for storing bacon.

**Badger**—A rebate plane with a wide skew mouth.

**Baguette**—A small moulding, like astragal but smaller; a bead.

**Bahut**—A large chest supported by feet, and used for storing household goods when not in use.

**Bail**—A handle of a piece of furniture in the form of a loop or ring.

**Bail-Handles**—Oblong drop handles made of brass; a feature of the William and Mary period.

**Balanced Joints**—Joints appearing in face veneer where widths of the various pieces of veneer are equal.

**Baldachin**—A canopy.

**Balk**—A squared beam or timber.

**Ball Foot**—The ball termination of a leg.

**Balloon**—A Hepplewhite chair back, hoop back in form.

**Ball-Turning**—See Knob Turning.

**Baluster Leg**—See Trumpet-Shaped Leg.

**Balusters**—Small columns supporting a rail, or forming stretchers in chair backs, etc.

**Balustrade**—A row of balusters, used extensively in Architects' Furniture.

**Bambino**—The infant Jesus wrapped in swaddling clothes, used as a decorative feature.

**Bamboo**—The wood of the bamboo tree used in making a type of fancy furniture.

**Bandbox**—A round or oval box for placing hats, etc., originally for bands or lapels which formed part of the costume of the Seventeenth century gentleman.

**Banderole**—A carved or painted band with an inscription or other device on its surface, often in the form of a ribbon with curled ends.

**Banding**—A contrasting band of colored or grained inlay.

**Bandy Leg**—Same as Cabriole Leg.

**Banister**—A baluster.

**Banister Back**—A Hepplewhite chair back, formed by banisters extending from the seat to the back top rail.

**Banjo Clock**—A wall clock shaped like a banjo, the dial resembling the body of the banjo and the case enclosing the pendulum resembling the neck.

**Bank**—A long seat or bench of the Middle Ages.

**Banker**—A chair covering.

**Banner Screen**—See Fire-Screen.

**Bar-Back**—A Hepplewhite shield back with uprights curved to match the shield design.

**Barber's Chair**—An Eighteenth century corner armchair with head-rest.

**Barefaced Tenon**—A tenon having but one shoulder.

**Barjair**—See Bergere.

**Barocco**—See Baroque.

**Barometer Case**—An elaborately decorated case for holding and protecting the barometer.

**Baroque**—A grotesque, fantastic style of ornamentation, common during first half of Eighteenth century.

**Barred Door**—A type of door, decorated with traceried patterns made with mouldings called "bars"; used by Chippendale and Sheraton.

**Bar Tracery**—See figure 5, page 103.

**Base**—The bottom of a piece of furniture; the plinth in carcase work; also the valances around the lower part of a bed.

**Base Rail**—The apron on a cabinet, dresser, or other piece of case furniture.

**Basin Stand**—A Chippendale washstand, usually made of mahogany, on which small hand basins were set.

**Bas-Relief**—Sculpture in which the figure projects but slightly from the background.

**Basses**—The valances round the lower part of a bed.

**Basset Table**—A Queen Anne period card table.

**Bassinet**—A basket-shaped baby's bed or cradle, originally made of wicker.

**Batten**—A strip of wood placed across a surface of one or more boards to prevent warping, to strengthen, etc.

**Battlement**—The indented or notched wall of a parapet, the design of which is used as a decorative feature on furniture.

**Baudekin**—A rich brocaded silk fabric of the late Middle Ages.

**Bayes**—A woolen fabric of coarse quality.

**Bead**—A narrow half-round moulding, either continuous or cut into small sections to form a series of rounded projections or beads.

**Bead and Butt**—A term used to refer to a framed panel when the sides have a "bead" separating them from the stiles of the frame and the ends "butt" against the rails of the frame.

**Bead and Flush**—See Flush Bead.

**Bead and Reel**—A bead moulding with a carved repetition of round and oval forms.

**Beam Compass**—A large wooden compass used for describing large circles or arcs.

**Bearer**—The drawer rail bearing the drawer.

**Beaufait**—An early form of buffet.

**Beaufet**—See Buffet.

**Beauvais Tapestry**—A famous French tapestry of various designs.

**Bed**—An article of furniture to rest or sleep upon, ranging in style from the most elaborate carved beds with tester and draperies to the simple iron bed and trundle type.

**Bed Moulding**—The moulding under the corona moulding of a cornice.

**Bed Posts**—The pillars supporting the canopy, or the bedstead legs themselves.

**Bedroom Bench**—A bench used as a seat in front of a dressing table or the like.

**Bedstead**—The supporting framework of a bed.

**Bed-Steps**—Low steps, usually carpeted, made for climbing into high beds, often quite ornamental.

**Bedstock**—See Slats.

**Bell-Flower Ornament**—See Husk Ornament.

**Bellows**—An article of furniture made with flexible sides and an air-chamber, used for directing a current of air upon a fire.

**Belly**—A protruding surface caused by buckling, warping, etc.

**Bench**—A long stool-shaped seat.

**Bench (workman's)**—A work-table, stoutly built and fitted with various appliances for holding cabinet work, etc.

**Bergere**—A French upholstered armchair, with closed upholstered sides.

**Bevel**—A sloping edge; also a tool similar to a square.

**Bezel**—The metal ring around the dial glass of a clock.

**Bible-Box**—A small, slope top desk, used to hold the Bible.

**Bidet**—A small bedroom stand.

**Bilboa Mirror**—A mirror, popular during the later part of the Eighteenth century, characterized by a frame of colored stones.

**Bilection**—Same as Bolection.

**Birdcage**—An openwork structure of wire or small bars, either hanging or placed upon a stand, for confining birds.

**Birdcage Clock**—A brass clock with open pendulum and weights, decorated with fret work; made previous to the grandfather clock.

**Birds**—Of various types, especially long-tailed birds and the eagle, used as decorative motifs.

**Bird's-Beak Lock**—A type of lock used on pianos.

**Birjair**—See Bergere.

**Birmask**—See Roughing Plane.

**Bisellium**—A Roman seat for two persons.

**Black Work**—Needlework of black silk worked upon linen, popular during Tudor times.

**Block-Foot**—A square-shaped termination of a straight, untapered leg.

**Block-Front**—A front, the surface of which is cut into block forms with either curved or square edges; popular during the third quarter of the Eighteenth century.

**Block Plane**—A type of iron tool plane.

**Block Saw**—A saw used upon a mitre block.

**Blodius**—In reference to upholstery or hangings of early times, a red color.

**Board**—Prior to the Sixteenth century the word for table; a piece of furniture made up of a board supported by trestles.

**Boasting**—Rough carving.

**Bodying In**—A term meaning to fill in the grain of wood.

**Bolection**—A projecting moulding surrounding a panel.

**Bombe**—The arched or bulging fronts and sides of the Louis XV period.

**Bonegraces**—Bed curtains used as a protection against draughts.

**Bonheur du Jour**—A highly decorative French writing-desk resembling a small bureau, designed especially for the boudoir.

**Bonnet Top**—The top section of a case in the form of an inclosed unbroken pediment.

**Book Box**—A box resembling a Bible box, used for holding one or several books.

**Bookcase**—An article of furniture used for storing books.

**Book Rest**—A framework structure built upon a slant for resting a book.



**Book Stand**—(Mod.) A stand or small table for holding a book while reading, or for placing books and magazines.

**Book Trough**—(Mod.) A small stand with a top in the form of a tray of V or right angle shape, serving as a rack for books; also this rack fixed to an end-table or other piece of furniture.

**Border**—An outer edge design of especially assembled veneer patterns.

**Borne**—A type of French sofa either round or oval in shape, with a pillar and terminal in the center.

**Boss**—A surface ornament of round or oval protuberance.

**Boston Rocker**—A Windsor type rocker with back of seat curved upwards and wide top back rail.

**Bottle-End Glazing**—A form of glazing the doors of English cupboards of a simple type.

**Bottle Turning**—A William and Mary form of turning resembling the shape of a bottle. Of Dutch origin.

**Bottom Rail**—Bottom piece in the framework usually of a bed.

**Bouille or Buhl Work**—A style of decorative inlay. Produced by sawing a design out of a thin piece of metal, such as brass, and inlaying it into a veneer of tortoise-shell, ivory, wood, or the like.

**Bow Back**—The back of a Windsor chair having a rounding top rail reaching down to the arms or seat.

**Bow Front**—A convex-shaped front, characteristic of the Eighteenth century.

**Bow Saw**—A type of hand saw having a thin narrow blade held taut by means of a framework, used for curved work.

**Bowl Stand**—See Washstand.

**Bow Top**—An unbroken curved top-rail of a chair.

**Box**—A legless repository of enumerable varieties.

**Box-Bed**—A Scottish bed which closed up against the wall so that it was almost invisible during the day.

**Box-Settle**—A settle, the lower part of which forms a chest, the lid being the seat.

**Brace**—A support used to help hold together parts of furniture, giving durability and strength to the whole structure.

**Brace and Bit**—A boring tool composed of two parts—the bit which is the cutting or boring part, made in various sizes and forms; and the brace which is the handle, holder, and operator of the bit.

**Braced Back**—See Fiddle-Brace Back.

**Bracket**—A projecting part of a piece of furniture used to support a shelf or ornament.

**Bracket-Clock**—An elaborate cased clock made for standing upon a shelf or mantel.

**Bracket Cornice**—A cornice supported by brackets fixed along the frieze.

**Bracket-Foot**—A two-way foot, running each way from the corner of a piece of furniture, forming a right angle at its base; much used on box-shaped furniture during the Eighteenth century.

**Bradawl**—A short, non-tapering awl, with cutting edge on the end.

**Brand Dog**—See Andirons.

**Brasses**—See Handles.

**Brass Work**—This term refers to any brass fittings, ornaments, or inlay found on furniture.

**Brattishing**—Sometimes used to refer to a carved cresting.

**Break**—A projection on a carcass, usually on the plinth or cornice, causing the general line to be broken.

**Breakfast-Table**—An elaborate small table made by Chippendale.

**Break-Front**—See Broken Front.

**Brewster Chair**—A heavy old chair used by the Pilgrims, with spindle back, sides, and front, thick turned posts, and a wooden seat.

**Bridge Lamp**—(Mod.) A lamp of the floor lamp type, having a short pedestal terminating in a bracket on which is fixed the shade, suitable to be near a chair or table for reading purposes.

**Broadcloth**—A plain woven cloth sometimes used for bed draperies.

**Brocade**—A fabric woven with a raised pattern, used for upholstery.

**Brocatelle**—An upholstery material of coarse brocaded or figured silk and wool or cotton.

**Broken**—Used to refer to any break in the general lines of a piece of furniture or decoration.

**Broken Front**—A front formed on various planes or levels. A block front is an example of this designing.

**Broken Pediment**—A pediment, the side lines of which do not come to a point or join.

**Bronze**—A reddish-brown alloy used for decorative purposes.

**Brushing Slide**—A slide fitted into wardrobes, etc., and when pulled out, used for brushing or arranging garments before placing them within.

**Buffet**—A French term, referring to a form of cupboard or sideboard used for dishes.

**Buffet Chair**—A stuffed chair resembling the corner arm-chair, with or without arms.

**Buhl**—See Boulle or Buhl Work.

**Bulbous**—A protuberant form of turning, introduced by the Dutch.

**Bullion Fringe**—A fringe of twisted cords, formerly having metal threads with fiber strands.

**Bull-Nose**—A small tool plane, used for planing close to projecting parts.

**Bull's Eye Mirror**—A mirror of convex, concave, or flat surface placed in a round ornamented frame.

**Bun-Foot**—A flattened globe, or bun-shaped foot.

**Bureau**—Originally a writing desk, but in America the word is used to refer to an article of bedroom furniture with drawers for clothing.

**Bureau Bookcase**—A piece of furniture with a desk bottom and bookcase top, made by Chippendale.

**Bureau Chamber Table**—A form of lowboy with a slant top desk in place of a table top.

**Burgomaster Chair**—See Wheel Chair.

**Burnishing**—Polishing or smoothing wood carving to give the appearance of modeling.

**Burjair**—See Bergere.

**Burjar**—A large upholstered armchair made by Chippendale.

**Burlaps**—Jute canvas of different weights used as an interior covering in upholstering furniture.

**Burls**—Excrescences sometimes appearing on trees, caused by abnormal growth, such as large knots.

**Burnt Work**—Designs burned into wood surfaces.

**Burr**—An English veneer, cut from Walnut roots; also the cutting edge of a tool.

**Butter Cupboard**—An English ventilated cupboard for storing bread.

**Butterfly Table**—A small flap-top table with supports for holding up the side wings, which resemble the wings of a butterfly.

**Butt Hinge**—A form of hinge for hanging doors.

**Butt Joint**—Joint made by joining together end wood, usually stumps, crotches, etc.

**Button Cup**—Small wooden receptacle for buttons, pins, etc., placed in the top drawer of dressers, etc.

**Butts**—The stump ends of trees.

**Cabinet**—A cupboard containing shelves, drawers, etc., enclosed by doors and used as a repository for various articles.

**Cabinetmaker**—One who makes cabinets and other choice pieces of household furniture.

**Cabinet-Work**—The art of working upon furniture requiring fine workmanship; also such furniture itself.

**Cabin Hook**—A small hook and eye, used in doors in cabinet-work.

**Cable Flutings**—Flutings of which the lower portion is blocked up by a convex moulding.

**Cable Turning**—A form of turning resembling coils of rope twisted in solid formation.

**Cabocho**—A plain, convex or concave, circular surface, surrounded by a carved ornamentation which when frequently polished resembles a jewel.

**Cabriole**—A style of leg which swells in a convex line at the knee and turns in concave form at the ankle, terminated by various feet.

**Cacqueteuse**—See Caqueteuse.

**Camber**—A slightly convex surface.

**Camel-Back Chair**—See Shield-Back Chair.

**Cameo**—A raised carving of delicate workmanship, used on furniture of Sheraton and early Empire styles.

**Camlet**—A material made of hair.

**Camp Bedstead**—A folding, portable bedstead, made of light material.

**Camp Furniture**—This term is sometimes used to refer to furniture which folds up or may be taken apart for transportation.

**Canal**—A moulding composed of two cockbeadings separated by a plain surface.

**Canape**—A sofa or couch, originally having a curtain to keep out insects.

**Candelabrum**—A branched candlestick, or lamp-stand.

**Candle Board**—A small shelf placed beneath a table top, used for a candlestick when not in use; often made by Sheraton.

**Candlebox**—A high-backed, wooden box, hung upon the wall, and used in England as a repository for candles.

**Candle Reserves**—The corner portions of card tables usually of polished wood for holding candlesticks.

**Candle Slide**—A small slide which, when drawn out, was used to hold burning candles.

**Candlestand**—A tall, slender table, usually a tripod, used for placing candlesticks or other small objects; made by Chippendale.

**Candlestick**—A support, or holder for one or many candles, of very ancient origin.

**Cane**—A flexible plant product, used for seats and backs; introduced during the Eighteenth century.

**Cane Edge**—See Wire Edge.

**Canephores**—Supporting columns in the form of women carrying baskets on their heads.

**Canopied Bed**—A bed covered by a canopy, usually of elaborate style and workmanship.

**Canopy**—A suspended covering over a throne or bedstead.

**Canopy Chair**—A high-back chair, forming a canopy by the extension of the back; used during the Fifteenth century by persons of state.

**Cant**—An inclination, or bevel, as a "canted" edge; also a moulding formed of plain surfaces and angles rather than curves.

**Canteen**—A box or case for bottles; also a case in which to deposit cutlery.

**Canterbury**—A piano stand or seat with a space for holding music; also a tray which held cutlery.

**Cantonnières**—Part of the draperies of a bed.

**Capital**—The ornamented head of the column.

**Cappings**—Turned or square ornaments such as the inverted cup, mushroom turning, etc.

**Caqueteuse**—A Sixteenth century French armchair with extremely high back.

**Caquetoire**—See Caqueteuse.

**Carcase**—The body or framework of a piece of furniture, without its doors, or ornaments.

**Card-Cut**—A Chinese style of lattice-work.

**Card Table**—A small table, usually folding, especially made for card playing.

**Carlton Table**—An English writing-desk of the Nineteenth century.

**Carolean**—Sometimes used in referring to the Jacobean period.

**Carsey**—A woolen fabric used for bed draperies.

**Cartel Clock**—A wall clock of the Eighteenth century.

**Carton-Pierre**—A composition introduced by Robert Adam. See Composition.

**Cartonnier**—A beautifully ornamented French box, for holding papers.

**Cartouche**—A decorative feature, in the form of an unrolled scroll; its surface often designed or inscribed.

**Carver Chair**—An Early American chair of turned parts, characterized by its back of three spindles, heavy posts, and usually a rush seat.

**Carving**—A form of ornamentation which is executed by cutting or chiseling designs on a surface.

**Caryatides**—Supporting columns in the form of women.

**Case**—Same as Carcase.

**Case Back**—Piece of wood forming back of carcase.

**Casket**—A small box or chest for holding jewels or other valuables.

**Cassolet**—A small box-like container for incense or perfume.

**Cassone**—A large, Italian, trousseau chest.

**Cast**—A lengthwise twisting of timber.

**Casters**—Small rollers attached to the feet or base of a piece of furniture to aid in moving along the floor.

**Cat**—A small piece of tripod furniture with a tripod upper section for resting dishes to warm before the fireplace.

**Caul**—A wooden or zinc plate, used in the process of veneering.

**Causeuse**—A small settee.

**Cavetto**—A concave moulding, often used on the top of cornices.

**C-Bracket**—A bracket in the form of the letter C.

**C-Decoration**—Open-work with a scroll design forming various C shapes, often found in chair backs of Chinese Chipendale.

**Cedar Chest**—(Mod.) A household chest of various sizes, especially used for storing woollens and furs because of its protection against moths.

**Cellaret**—A deep drawer in a sideboard, for holding bottles.

**Celluloid**—An ivory substitute, used in marquetry.

**Celure**—An old word used to refer to the top part of a bed, apparently the frame of the tester.

**Center Drawer Guides**—Strips of wood placed in the case under the center of drawers for guiding them when drawn back and forth.

**Center Partition Rail**—The division between two drawers.

**Center Stretcher**—Stretcher connecting two side stretchers.

**Center Table**—Any table suitable to be placed in the center of a room, that is finished or decorated on all sides.

**Certosina**—A variety of inlay, in which bone or ivory is used on a dark wood, such as ebony.

**Chair**—A piece of furniture having as its essential parts seat, back, and legs, and used to sit upon. It is made up of many parts, and varies greatly in form. Its various types and makes may be found under separate headings.

**Chair Back**—The top or back portion of a chair.

**Chair-Bed**—An English chair of the Eighteenth century which could be elongated into an improvised bed.

**Chaise-Longue**—A French style of sofa, made like a chair with a seat long enough to recline upon; during the middle of the Eighteenth century, when first in favor, it was made in three parts, a pair of armchairs and a stool.

**Chamber Horse**—See Exercising Chair.

**Chamber Table**—Same as Lowboy.

**Chamfer**—A beveled edge, or a splay.

**Channel**—A concave line cut into a surface; used as a decorative feature in mouldings and parts of furniture.

**Chariot Plane**—Small plane with one iron, used for finishing small stuff.

**Chasing**—The ornamenting of metal by indenting, etc.

**Chauffeuse**—A chair with a low seat.

**Check**—An inlay design composed of squares.

**Cheese Press**—An ornamented English press, made of wood, and used for pressing fresh cheese.

**Chenets**—French for andirons.

**Chenille**—A soft fluffy thread or cord used in making a material of that name and fringes for furniture.

**Chequer**—A form of decoration made up of squares; much used in inlay.

**Cherub**—An ornamental figure representing a beautiful child with wings. Often the head alone is used.

**Chess Table**—A small table having a top either inlaid or painted in the pattern of a chessboard.

**Chest**—A box-shaped piece of furniture, having a cover or lid secured by hinges, used as a repository for household goods; (Mod.) a piece of dining-room furniture with stationary top and doors in front.

**Chesterfield**—An overstuffed sofa or couch having two sides or ends.

**Chest of Drawers**—A box-like frame containing drawers, used to store linen or other household goods; a development of the old chest.

**Chest on Chest**—A chest of drawers of two sections, one chest of drawers placed above another.

**Cheval Glass**—A large mirror, about 6 feet high, swinging from vertical posts, with stretcher between, and mounted on trestles; also made in small form for placing on cabinets or tables.

**Chevron**—An inlay design of V shape.

**Chiffonnier**—An ornamental cabinet with shelves and drawers; (Fr.) a high, narrow bureau.

**Child's Chair**—A small low chair, usually with arms, made in same styles as chairs for adults, however, rarely so elaborate.

**Chimaera**—A mythical fire-breathing monster, often used for ornamental purposes.

**Chimera**—See Chimaera.

**China Cabinet**—A large glass-fronted case or cupboard, standing on legs, and used for displaying fine china. Usually very elaborate in style.

**China Closet**—A style of china cabinet.

**Chinese Foot**—See Bracket Foot.

**Chinoiserie**—The Chinese style of ornamentation.

**Chintz**—A cotton fabric printed with bright colored floral designs, used for chair covers.

**Chip Carving**—A form of carving, as the name suggests, produced by chipping away the wood from the design.

**Chisel**—A cutting-tool usually with a beveled edge.

**Chop Inlay**—An early form of inlay in which pieces were fitted into a solid surface.

**Churn Moulding**—A zigzag moulding often seen in Norman architecture.

**Ciseleur**—An engraver or maker of metal ornaments.

**Cistern**—See Wine-Cooler.

**Clamp**—A device used for strengthening or making firm a part of furniture.

**Clap-Post**—The upright post of a cupboard on which the door "claps" or closes.

**Clap Table**—See Pier Table.

**Classical**—Greek and Roman forms or styles.

**Clavichord**—An early musical instrument, a forerunner of the modern piano.

**Claw Foot**—A foot shaped like an animal's claw.

**Claw-and-Ball Foot**—A foot carved in the form of a bird's claw grasped round a ball.

**Cleat**—A strip of wood or other material fastened across a surface to hold or strengthen.

**Clippers**—Machine used in clipping or cutting veneer to dimension.

**Clock**—A mechanical instrument for measuring and indicating time. In reference to furniture, clock cases are of importance.

**Clothes-Press**—A cupboard with drawers, used to store clothing.

**Cloth of Estate**—A decorative cloth draped over a throne or chair-of-state.

**Cloven Foot**—A foot shaped in the form of an animal's hoof, cloven-shaped.

**Club Foot**—An Eighteenth century style of foot, shaped outward from the leg into a thick, flat base; usually used with a cabriole leg.

**Clustered Columns**—Three or more columns clustered together, showing Gothic influence; much used during the Eighteenth century.

**Cluster-Column Leg**—A leg formed by clustered columns, extensively used by William Ince.



**Coaster**—A type of tray made in various shapes, with smoothly polished bottom or fitted with small wheels so as to conveniently slide along a table.

**Cockbeading**—A small, semi-circular, projecting moulding, used around drawers.

**Cockle Shell**—See Shell Ornament.

**Cock's Head Hinge**—A hinge with the leaves or flat parts cut in the shape of a cock's head.

**Coffer**—A chest which served as a seat, table, trunk, or place for storing valuables.

**Coffered-Panel**—A panel deeply sunken below the surface.

**Coffin-Stool**—A small English stool, supported by four legs, with stretchers. Origin of name uncertain.

**Coin**—A small corner cupboard.

**Coir Fiber**—A stuffing material made from cocoanut husk, resembling African fiber but of an inferior grade.

**Collar**—A moulding extending around a leg.

**Column**—A vertical shaft or pillar, used in furniture as a support.

**Columnar Supports**—Supports made to represent an architectural column.

**Comb Back**—A type of Windsor chair back formed by the center spindles extending above the main back to support a head rest.

**Commode**—A chest of drawers, originally made in France.

**Commode (Bedroom)**—An enclosed wash-stand; a portable stool or night-chair.

**Commonwealth**—A period in English furniture referred to as Cromwellian, see page 175.

**Compass Plane**—A plane with adjustable sole, used for smoothing concave or convex surfaces.

**Compass Saw**—A type of hand saw with small tapering blade, used for cutting in a small circle or the like.

**Compo**—An abbreviated form for Composition.

**Composite Capital**—A Roman form of capital which combines the Corinthian and Ionic orders.

**Composition**—A substitute for wood carving, introduced by the Brothers Adam.

**Confidente**—A sofa or settee with seats at each end.

**Connecticut Chest**—An Early American chest ornamented by three carved panels and split spindles.

**Consoles**—A bracket of any kind, especially one used to support cornices or ornamental fixtures.

**Console-Table**—A table, placed against a wall, usually with a mirror above, originally supported wholly or in part by consoles (brackets), or by legs having the appearance of consoles.

**Contre Partie**—A term used in reference to Boulle work when the brass predominates.

**Conversation Chairs**—Chairs of various styles, but in general one in which the occupant may comfortably sit and talk with someone at the side or back.



**Coopered Joints**—Joints resembling those made in barrels, used in curved parts.

**Copies**—Reproductions of furniture, usually of the historic periods.

**Coquette**—See *Cacquette*.

**Coquillage**—An ornamental shell design used on frames and other light pieces of furniture in Rococo style.

**Corbel**—A bracket or brace, usually in the form of an animal's head, found under table tops, mantel-shelves, etc.; the lion's head was much used during the Eighteenth century.

**Corduroy**—A thick cotton material with pile forming cords or ribs the length of the goods, used in upholstery.

**Core**—The internal part of a piece of furniture. In reference to veneer, the base of plywood or solid wood upon which the veneer is placed.

**Corinthian**—Greek order of architecture marked by slender, fluted columns with elaborate capital.

**Cork Rubber**—A thin piece of cork of special shape used for finishing work.

**Corner Armchair**—An English armchair, popular during the Eighteenth century, usually having a square seat so turned that one of its corners came directly in front.

**Corner Block**—A triangular block fixed in the corner of the frame of furniture to add strength.

**Corner Cupboard**—An Eighteenth century, English china cupboard, built to stand or hang in the angle of a room.

**Corner Furniture**—Pieces of furniture, the backs of which usually form a right angle, made to fit into a corner.

**Cornice**—The top or finishing moulding of a column or piece of furniture; on box-shaped furniture this projecting moulding is often elaborately carved.

**Cornucopia**—The horn of plenty, from which issues fruit and flowers, used as a carved ornamentation.

**Cornucopia Sofa**—A sofa with a carved cornucopia design on arms, legs and back.

**Corona**—A classic moulding, forming part of a cornice moulding.

**Cosy Chair**—A style of easy chair with upholstered seat, high back and large wings.

**Costumer**—(Mod.) A stand or frame resembling the hall tree.

**Cot**—A light, portable bedstead.

**Cottage Furniture**—A cheaper grade of furniture, usually much lighter and plainer in design, for furnishing the summer home.

**Couch**—A long upholstered seat or lounge for reclining upon during the day.

**Counter Boulle**—See *Contre Partie*.

**Counterfeits**—Copies, or made over pieces of antique furniture sold as original.

**Counters**—Tables or chests with their top surfaces marked for measuring or counting.

**Countersink**—A tool which makes a cavity in wood for sinking a screw head.

**Court Cupboards**—A cupboard of the Sixteenth and Seventeenth centuries, of box-shaped form, elaborately carved and paneled. The term court (Fr.) meaning short.

**Courting Chair**—A two-chair-back settee.

**Cove**—A large hollow cornice; also a niche.

**Cradle**—A small box or basket-shaped bed for infants, originally made of oak, and mounted on rockers; of various styles and designs.

**Cradle (vencer)**—A frame with surface sunken in the center, for placing glued veneers to hold the edges together until dry.

**Cramp**—A frame with one or more screws, in which pieces may be clamped or forced together, as in joinery-work.

**Credence**—An antique buffet, or side table, used for carving meat or displaying plate.

**Credenza**—See Credence.

**Cresting**—A style of carved ornamentation used on the top parts of furniture.

**Crewel Work**—A form of old embroidery work used for upholstery.

**Crib**—A child's bed, enclosed by side parts.

**Cricket**—An old English foot-stool.

**Cricket Table**—A small Jacobean table with three legs.

**Crinoline Stretcher**—A stretcher which joins the two front legs in a semi-circle curve and is connected to the back legs by two short stretchers; much used on Windsor chairs.

**Criss-Crossed Work**—See Lattice Work.

**Crocket**—A carved ornament, convex in shape, used by Chipendale and Hepplewhite.

**Cromwellian Chair**—A low-backed, leather upholstered chair of simple lines, made during the time of the Commonwealth.

**Cross-Banding**—The inlaying of a band of veneer so the grain or figure runs transversally to that of the main surface.

**Cross Rail**—A horizontal bar in a chair back.

**Cross Rails**—Pieces stretching from the back to front partition rails, for holding dust bottoms and often to serve as drawer slides.

**Cross-Stitch**—A form of needlework used in embroidered hangings and coverings.

**Cross-Stretchers**—The stretchers of a piece of furniture which intersect or cross, not only adding to the grace of the article but also furnishing greater strength to the frame.

**Crotch**—Veneer cut from limb crotch, or from twin trees which have joined together, forming an unusual end wood figure.

**Crown-Back**—A feature of the Hogarth chair.

**Crowned Roller**—A veneer roller crowned or higher in the middle than at each edge.

**Crushed Ball**—A foot, as the name implies, slightly flattened at the top and bottom as if by a pressure from above.

**C-Scroll**—A C-shaped carved design, introduced by the French.

**Cube Foot**—Same as Block Foot.

- Cuir Bouilli**—A kind of heat-treated leather of hard, firm surface.
- Cup and Cover Turning**—A bulbous form of turned ornament resembling a deep cup with lid or cover.
- Cupboard**—A cabinet with shelves for placing tableware, of many styles and shapes.
- Cupboard-Bed**—A bedstead which folds against the wall when not in use.
- Cupid's Bow**—A bow-shaped top rail to a chair of the Chipendale period.
- Cupped Leg**—See Inverted Cup.
- Cup-Turned**—A turned leg having a cup-shaped bulge.
- Curl**—A feather-form marking in the grain of wood.
- Curled Hair**—Coarse curled hair, largely the mane and tail hair of horses, used as a filling or stuffing in upholstery work.
- Curricule Chair**—A chair with a long seat and circular back, mentioned by Sheraton in his Cabinet Dictionary.
- Curtain**—A draped or hanging fabric used as a screen, particularly on beds.
- Curtain Piece**—A span-rail placed on the upper part of a carcase.
- Curul Chair**—See Curule Chair.
- Curule-Chair**—An X-shaped chair, the official chair of the Romans.
- Curved Back**—See Spoon Back.
- Cushion**—A loose part of the upholstering of a piece of furniture.
- Cushioned Frieze**—A convex, Renaissance frieze.
- Cusps**—Points projecting from the under-surface of Gothic arches; a style of ornamentation found in English Eighteenth century furniture.
- Cutting Gauge**—A gauge with cutter in place of marker.
- Cutting Nippers**—A type of pincers with a cutting bite.
- Cutwork**—See Fretwork.
- Cylinder Front**—See Roll-Top Desk.
- Cyma Curve**—An S-shaped curve or wave.
- Cyma Recta**—A cornice moulding having a wave-like curve, the top or uppermost curve being concave and the lower convex.
- Cyma Reversa**—A cornice moulding the curves of which are opposite to those of the cyma recta, that is the top curve is convex and the lower concave.
- Cymatium**—The portion of a cornice which contains a cyma curve.
- Cypress Chests**—Chests used for holding fabrics, made of cypress to guard against moths.
- Dagobert's Chair**—An X-shaped chair made of cast bronze; a relic in the Louvre, said to have belonged to Dagobert I.
- Dais**—Same as Dias.
- Damascening**—Imitating ancient Damascus work, by an inlay of one metal upon another.

**Damask**—A silk and linen fabric of conventional design used for upholstery.

**Darby and Joan Settee**—A two-chair-back settee.

**Davenport**—A small writing-desk; in the United States, (Mod.) a large sofa or couch with back and arms, named after the maker.

**Davenport Bed**—(Mod.) A davenport which unfolds into a bed.

**Davenport Table**—(Mod.) A long narrow table suitable to be placed along the back of a davenport.

**Day-Bed**—A couch or settee, with or without arms or back, used to lie upon during the day.

**Decoration**—The ornamentation of furniture, such as carving, painting, inlaying, applying of mouldings, mounts, upholstery, etc.

**Demoiselle**—A small French pedestal table of early date, having the carved and painted form of a woman's head fixed to the top. Used as receptacles for head-dresses.

**Denim**—A twilled cotton material used in upholstery.

**Dentil**—A decorative detail of cornice moulding, consisting of small blocks placed at intervals; also used as an inlay pattern.

**Derbyshire Chair**—An open-back chair of the Jacobean period; also known as a Yorkshire chair.

**Desk**—A cabinet or case especially made for writing or studying; often combined with a bookcase or some other piece of furniture.

**Desk Box**—A box opening up into a small desk, with writing surface, compartments for papers, and divisions for pencils, pens, stamps, etc.

**Diamond Cut Mirror**—A mirror with a design cut into the surface.

**Diamond Ornament**—See Lozenge.

**Diamonds**—Pertaining to veneer, a design made by arranging straight or parallel grain veneer to form a diamond effect. See "Veneers and Plywood."

**Diaper Work**—A conventional decorative design, used on surfaces at regular repeated intervals.

**Dias**—A raised platform for placing chairs of state, or other pieces of furniture as a mark of distinction.

**Dining Table**—A large table, usually an extension table, placed in the center of the room and around which persons may sit and eat; of various forms and styles.

**Dining Armchair**—(Mod.) A dining chair with arms, the design usually matching that of a suite, placed at the head of the table.

**Dining Chairs**—Chairs used at a dining table, usually matching it in design.

**Dinner Wagon**—A tray or tier of trays placed on wheels, used to carry dishes, etc.

**Direct Print**—In upholstery, a material which is printed or colored after it is woven. See Warp Print.

**Dished**—Referring to the pocket-shaped dips in the surface of card tables, used for holding money.

**Dish-Topped Table**—A table, the surface of which slants to the center.

**Divan**—An Oriental upholstered couch without arms or back.

**Dog Grate**—A metal frame with cross bars, used for holding burning fuel in a hearth; often elaborately decorated.

**Dog-Tooth**—An ornamental detail, resembling the dentil but triangular in shape.

**Dole Cupboard**—An ecclesiastical cupboard for holding food for the poor.

**Dolls' Houses**—Miniature houses equipped with miniature furniture, often giving splendid examples of the furniture of the time.

**Dolphin**—A sea animal whose head, or head and body are conventionally used as a decorative design.

**Domed Top**—See Hooded Top.

**Donkey**—A machine used for cutting marquetry.

**Door**—The hinged or sliding opening in the front of a piece of furniture.

**Door Filler**—A strip placed between the post and trays of a chifforette to allow room for the drawers or trays to pass the open door.

**Doric**—Greek order of architecture, marked by strength and simplicity.

**Dormant**—A word used to describe a dining table fixed to a dias.

**Dosser**—An old term of the Middle Ages, in reference to furniture, the decorative covering of a chair back.

**Dossier**—A high-back bench, often with canopy, used as either a seat or bed. Popular during the Middle Ages.

**Double Arch Moulding**—A moulding composed of two semi-circular mouldings placed together.

**Double-Chair**—A two-chair-back chair, resembling two chairs placed side by side with one long seat.

**Double Chest**—A piece of furniture made up of two sets of drawers; also called a tall-boy.

**Double Cushioning**—A type of upholstering which has the appearance of being composed of two cushions although in reality the first cushion is usually a cushion in appearance only and includes the frame as well as the foundation essentials. The top cushion is usually a real cushion though sometimes attached.

**Double-Rail Windsor**—A fan-back Windsor chair with two top rails, one slightly above the other.

**Double Runners**—A term referring to the runners of a drawer when they are not only on the under part but also on the side.

**Double-Stuffing (Uphol.)**—A system of building stuffing on stuffing in two successive layers, each confined by a separate covering.

**Dovetail**—A joint made by interlocking wedge-shaped tenons and spaces.

**Dovetail Saw**—A small, fine type of back saw.

**Dowel**—A pin or peg fitted into two adjacent pieces to fasten them together.

**Doweling**—A method of fastening wood together by pegs or pins called dowels.

**Dower Chest**—A large chest of ancient origin, often elaborately decorated, for storing the linen, etc., of the bride-to-be.

**Down**—The soft, fluffy, plumage growing under the top feathers of birds, used in upholstering some of the best furniture.

**Dragon's Head**—A carved ornament of that shape, much used during the Seventeenth century.

**Draught Chair**—A large wing-backed English chair, of Tudor origin.

**Drawbore Pin**—The pin fastening tenon and mortise in a joint.

**Draw Table**—A type of extension table, introduced during the Sixteenth century.

**Drawer Bottom**—Thin piece of wood forming the bottom part of a drawer.

**Drawer Division**—Piece dividing drawers when placed in a row of two or more.

**Drawer Mounting**—Side pieces of drawers, grooved to hold the drawer bottom.

**Drawer Runner**—See Runners.

**Drawers**—The box-shaped trays which slide into the carcase, used for placing articles; their interior is always plainly finished, and often in plain wood.

**Drawer Sides**—Pieces forming the side sections of a drawer.

**Drawer Slip**—The grooved strip which carries the drawer.

**Drawing Table**—An early form of extension table.

**Dresser**—A style of bureau or cupboard; in the United States, a chest of drawers supporting a swinging mirror.

**Dressing-Cabinet**—A dressing-table in the form of a cabinet, made by Adam brothers.

**Dressing Commode**—A Chippendale low-standing cabinet or chest of drawers.

**Dressing-Table**—A four-leg table with mirror, of various styles, used for holding articles of toilet and before which one may dress.

**Drinking Table**—Better known as Wine-Table.

**Drill**—A type of bit of spiral form; the word is also used to refer to the tool itself, that is the combined brace and drill.

**Drop**—A pendant ornament.

**Drop-Front**—The front of a desk which is dropped forward for use.

**Drop-Handles**—Variously shaped handles which hang pendant-like.

**Drop-Leaf Table**—See Flap Table.

**Drop-Ornament**—An ornament used like the apron but which does not run the full width of the frame.

**Dropped Seat**—A concave seat, the hollow of which runs from front to back.

**Drunkard's Chair**—A large English chair of the Eighteenth century.

**Dryers**—Mechanical or other type drying machines used for taking moisture from veneer.

**Duchess**—A French style of couch or chaise-longue made up of three pieces, two barjier or bergere chairs with stool between.

**Duchesse Settee**—English equivalent of chaise-longue.

**Dug-Out Chest**—A crude, antique chest, made of a hollowed tree-trunk.

**Dulcimer**—A stringed musical instrument played with padded hammers.

**Dumb Waiter**—A stand consisting of tiers of various sized shelves, sometimes having a wine-cooler in place of the bottom shelf.

**Duplex Tapestry**—A tapestry so woven as to be double faced, each side being a different color.

**Dust Board**—A horizontal board running between drawers to exclude dust.

**Dust Bottom**—A thin surface of wood placed between drawers.

**Dutch Angular Foot**—A club foot with circular toe replaced by toe forming angles usually of three points.

**Dutch Elongated Foot**—A club foot with toe forming a point.

**Dutch Foot**—A club foot.

**Dutch Grooved Foot**—A Dutch foot with shallow channels or grooves extending from the leg to the toe.

**Eagle's Head**—A carved head often found on arms of the Queen Anne period.

**Ear**—An upholstery term referring to the frame which forms the wing of a wing-chair. Also a term used to refer to the projecting top rail ends of a fan back.

**Ear Motif**—A carved scroll in the form of the human ear, often greatly elaborated.

**Ear-Piece**—A scroll which runs across a cabriole leg.

**Easel**—A framework made to stand on the floor and support a picture.

**Easy Chair**—A chair built to afford the occupant the greatest possible comfort and relaxation; formerly a large, upholstered French chair.

**Ebonist**—(Fr. Ebenistes)—A worker in ebony wood; sometimes a high-class cabinetmaker.

**Echinus**—See Egg-and-Dart.

**Edge Dogs**—Steel pins or teeth used for holding flitches from each edge.

**Edge Roll**—A moulding detail of Gothic origin.

**Edging**—A protective detail of veneering.

**Egg-and-Anchor**—See Egg-and-Dart.

**Egg-and-Dart**—A classic moulding of alternating egg forms and darts.

**Egg-and-Tongue**—A design formed of egg and lamb's tongue motif.

**Eight-Leg Table**—A mahogany gate-leg of the Eighteenth century.



**Elbow Chair**—An armchair with upholstered arm-pads for the elbows.

**Ellipse**—An oval form.

**Emblem**—A symbolic ornament often used as a carved decoration.

**Emboss**—To ornament a piece of furniture with raised work.

**Enamel**—A hard glossy finish used on furniture.

**Encarpus or Encarpa**—An ornament consisting of a festoon of fruit, flowers, leaves, etc.

**Encoignure**—A French piece of corner furniture resembling a small cabinet.

**End Table**—(Mod.) A small table, suitable to be placed at the end of a davenport or side of a chair.

**Endive Marquetry**—See Seaweed Marquetry.

**Endive Scroll**—A carved leaf design.

**Engrailed**—Indented with small concave scallops or curves.

**Engraving**—The method of cutting or carving a design upon hard surfaces, such as glass, marquetry, etc.

**Enrichment**—The elaborate decoration of a piece of furniture.

**Entablature**—The ornamentation above a column, made up of architrave, frieze, and cornice; as applied to the decoration on cabinets, etc., the cornice.

**Entasis**—A slight swell in a column in order to avoid the optical illusion of being slightly concave.

**Escabeau**—A French stool with carved board supports at either end.

**Escallop Shell**—The cockle-shell ornament.

**Escrtoire**—A writing desk with drawers, pigeon holes, and often secret compartments for valuable papers, etc.

**Escutcheon**—A carved shield and crest ornament; also a brass fitting or place over a keyhole.

**Espagnolette**—An ornament placed at the corners of furniture representing the head of a woman surrounded by a ruff, especially used on Louis XIV furniture.

**Etagere**—A style of "whatnot", consisting of a series of shelves supported by columns.

**Evolute**—A wave scroll, used on frieze mouldings.

**Excelsior**—Long, fine, wood shavings used as a stuffing in the upholstering of a cheap grade of furniture; mostly used to pack furniture for shipment.

**Exercising-Chair**—A chair popular during the latter part of the Eighteenth century, fitted with various contrivances for exercising.

**Extension Table**—Any type of table that can be made longer than its usual size, that can be extended.

**Extrados**—The outer line or surface of an arch.

**Facing**—A term used to refer to an economical method of covering cheap wood with expensive wood.

**Fakes**—See Counterfeits.

**Faldstool**—An ancient X-shaped, folding stool.

**Fall Front**—Same as Drop-Front.



**Fall-Leaf Table**—See Flap Table.

**Fan Back**—The back of a Windsor chair having a straight top rail supported by spindles often slightly radiating in semblance of a fan.

**Fan-Back Chair**—A chair, the back of which is designed to resemble a fan either in an upright or downward position.

**Fancy Furniture**—Furniture, usually small, made more for ornamental purposes than for utility.

**Fan-Design**—A fan-shaped or half circle design used during the Eighteenth century.

**Farthingale Chair**—A large armless, English chair of Elizabethan and Tudor times, made especially for the ladies, who then wore farthingales.

**Fasces**—A decorative ornament in the form of a bundle of rods bound with a projecting axe, a Roman badge of authority.

**Fascia**—A fillet or band in moulding.

**Faun Design**—A decorative design used in the Adam period, representing a creature half man and half goat.

**Fauteuil**—A French upholstered armchair, differing from the French bergere armchair in that its sides are open.

**Favas**—A Louis XVI decorative detail of repeat, resembling honeycomb cells.

**Feather Edge**—A pointed or fine edge.

**Feathered**—A band of veneer inlaid in two rows, the grain of each running obliquely as the barbs of a feather.

**Fender**—A metal screen, often quite decorative, placed before the open fire to protect the floor.

**Fernery**—A stand, in the top of which is fitted a box for holding ferns or other plants.

**Fern Pattern**—A decorative design in the form of the fern leaf.

**Festoon**—A decoration representing a series of scallop forming loops in a rope or chain of flowers, drapery, or the like.

**Fiber Furniture**—A type of woven furniture.

**Fiddle Back**—A chair back with a violin-shaped splat; also a kind of figured veneer.

**Fiddle-Brace Back**—A back characteristic of Windsor chairs, having two spindles radiating from a tongue in the back to the top bar.

**Fiddle-String Back**—See Stick-Back.

**Field-Bed**—A bedstead with curved tester and quite low posts.

**Fielded Panel**—A panel formed by a moulding or groove on a plain surface.

**Figure**—Unusual design in the grain of wood, such as mottle, fiddle back, or marks other than the natural grain of the wood.

**File**—A hard steel instrument, made in various shapes and sizes, for smoothing wood or metal.

**Filigree**—Delicate ornamental work done by intertwisting gold and silver wire.

**Filigree Paper Decoration**—Filigree made of twisted paper colored and gilded in place of precious metals originally used. Popular in England during the Fifteenth and Sixteenth centuries.

**Fillet**—A narrow band used to connect with mouldings; also a narrow ledge for shelves.

**Fillister**—A plane for making grooves.

**Finger Joint**—A bracket joint, consisting of fine interlocking fingers.

**Finial**—A terminal ornament or decoration.

**Fire-Dogs**—Same as Andirons.

**Fire Irons**—Metal utensils for a fireplace, usually matching the fender.

**Fire Screen**—A frame-like piece of furniture used for protection against the heat of the fireplace.

**Firmer Chisel**—A short thick chisel with beveled edge.

**Fish**—A symbolic ornament of that shape.

**Fish Skin**—A green, decorative material, made from fish skin, used with silver mounts and fittings.

**Fitting Up**—The final work on furniture such as placing fittings, glass, etc.

**Five Ply**—Plywood built, using five separate plies.

**Fixative**—A liquid preparation, sprayed over drawings to make permanent.

**Flamboyant**—A descriptive term, meaning over-decorated work, applied to Gothic.

**Flap Strapping**—The method of producing strapwork.

**Flap Table**—A table with top made up of a stationary part and one or more side pieces, which may either form part of the top or hang at the sides.

**Flash**—A brightly shaded figure in wood.

**Flat Carving**—Carving in which only the background is cut or taken out leaving the design itself flat.

**Flatting**—A veneering process used on buckled veneers.

**Flemish Chair**—A Seventeenth century chair of weak construction, generally Flemish design, usually upholstered in bright woolen weaves.

**Flemish Scroll**—A scroll, the lower portion of which is a C-scroll and the upper portion a reversed C-scroll, the two portions so joined as to form an angle, usually right.

**Flemish Scroll Leg**—A leg in the form of a Flemish scroll.

**Fleur-De-Lis**—A conventional, floral decoration, or French emblem.

**Flitch**—Section of the log usually cut so as to show veneer of a quartered radius. So cut for the purpose of showing figure rather than grain. (See Veneers and Plywood.)

**Floor Lamp**—(Mod.) A large lamp with floor base and high pedestal frame.

**Floreated**—Decorated with a floral design or ornament.

**Flower-Boxes**—Decorative boxes of various shapes in which bulbs and plants are grown; introduced during the reign of Charles II.

**Flower-Table**—See Jardiniere.

**Flush**—A term meaning level with another surface.

**Flush Bead**—A moulding with the bead or convex protuberance flush with the general surface.

**Fluted Leg**—A leg having a series of grooves or flutings running its length.

**Flutings**—Grooves or channels running along a column, baluster, leg, frieze, etc.

**Flying Disk**—An Egyptian decoration in the form of a disk with wings.

**Fly Rail**—The supporting side rail of a flap table.

**Foil**—The intersectional point of two arcs, such as the foils of a quatrefoil.

**Folding Chairs**—X-shaped, collapsible chairs, having been made since Egyptian days; their form and ornamentation range from very simple to extremely elaborate.

**Folding Furniture**—Furniture devised or planned so as to fold flat or to form a smaller article.

**Folding Screen**—A screen made up of two or more leaves which fold face to face.

**Folding Stool**—See Faldstool.

**Foliated**—Decorated with a leaf design.

**Foot**—The lowest supporting member of a piece of furniture; the termination of the leg. Variant in form and decoration.

**Footboard**—The foot end of a wooden bed between the two side rails.

**Footman**—A plate warmer, about 12 inches high, with a perforated top, placed near the hearth.

**Foot-Rail**—The front stretcher of a chair, in high chairs often used to rest the feet.

**Footstool**—A low stool for supporting the feet when sitting.

**Foot-Warmer**—A box-shaped footstool with holes in the top and sides, used for placing heat to warm the feet; often decoratively carved.

**Form**—A long stool or backless seat.

**Forty-Wink Chair**—A large, upholstered, high-back chair, with side wings upon which to rest the head.

**Four-Post Bedstead**—A well known bedstead with four posts, two head posts and two foot posts; also under this term comes bedsteads with two foot posts and a frame at the head.

**Frame**—The case or border which surrounds, or encloses a glass, picture, etc., often richly carved or ornamented; also the skeleton structure of furniture.

**Framed Table**—A table without leaves.

**Frame Saw**—See Bow Saw.

**French-Bed**—A bedstead without posts and having roll ends.

**French Bracket Foot**—A long bracket foot curved in a concave line.

**French Chair**—Sometimes used to refer to any style of upholstered armchair.

**French Foot**—A scroll-shaped foot with leaf design terminating a cabriole leg.

**French Polish**—An inferior polish, introduced during the Eighteenth century.

**Fret**—Ornamental work of an interlaced design, either perforated or applied on a solid background.

**Friesland Design**—Angular and circular designs executed in flat carving.

**Frieze**—The part of the entablature between architrave and cornice.

**Frilled**—A term used to refer to a scroll which has added decorative carving along its projecting edges, such as a frilled C-scroll.

**Fringe**—A decorative finishing edge for upholstery.

**Frise**—An upholstery fabric of mohair and other materials.

**Frithstool**—A round Anglo-Saxon stool.

**Front**—The foremost part of a piece of furniture, of various shapes and designs.

**Front Bar Frame**—See Front Partition Rails.

**Front Partition Rails**—Pieces extending between the front posts of a case, for dividing drawers.

**Front Rail**—Rail which connects the two front posts in upholstered furniture frames.

**Front Rail Lining**—Piece for upholstery attached to front rail of upholstered furniture frames.

**Furniture**—Interior decorative and utilitarian furnishings used by man in outfitting his home, his house of worship and public and private buildings.

**Fustian**—A coarse twilled cotton or linen fabric used in early times for bed draperies.

**Gadroon**—A carved decoration for edges, of nulling form.

**Gallery**—A small railing around the top of a cabinet, table, etc.

**Galloon**—A narrow tape-like fabric, used as gimp during the Eighteenth century.

**Games Table**—An Eighteenth century table used for playing games, such as chess, etc.

**Garde du Vin**—See Wine-Cooler.

**Garderobe**—French wardrobe. Also a piece of furniture for holding toilet articles.

**Garland**—A wreath of leaves, flowers, fruit, etc., used as a decorative detail.

**Gate-Leg Table**—A table having a three-piece top, supported on from four to twelve legs; introduced during the Seventeenth century.

**Gauge**—An instrument for measuring distance.

**Gentlemen's Social Table**—An English table of the Eighteenth century, better known as Wine Table.

**Gesso**—A decorative moulding substance used for ornamenting furniture.

**Gilding**—Decorating furniture with gold dust.

**Gimlet**—A small boring-tool resembling a pointed bit fitted into a handle.

**Gimp**—A narrow flat tape used as an ornamental trimming or finish in upholstery.

**Girandole**—A branching chandelier or bracket-light often in combination with a mirror, much in vogue during the Eighteenth century.

**Glass**—A hard, transparent substance, used in furniture for doors, handles, mirrors, decorations, etc.

**Glastonbury Chair**—An X-framed ecclesiastical chair with sloping arms and back.

**Glazed Doors**—Doors fitted with glass, usually having a pattern or lattice of woodwork between the glass.

**Globe-Stand**—A metal or wood framework supported by legs or a flat base, often elaborately decorated, used for holding terrestrial and celestial globes.

**Glue**—An adhesive preparation used to join parts of furniture, veneer, etc.

**Glue Blocks**—Small blocks of wood glued or otherwise fixed into a carcass for the purpose of strength and support.

**Glyph**—A short vertical groove.

**Gobelins**—Factory founded in Paris by Colbert, 1663. Originally made the Royal furniture but later noted for fine tapestry only.

**Godroon**—See Gadroon.

**Going-Cart**—See Baby-Cage.

**Gondola-Back**—The back of a chair or sofa which forms one solid piece with the arms, being high in the center back and sweeping in a downward curve to form the arms.

**Gothic**—A symbolic form or style. Much used on ecclesiastical furniture.

**Gouty Stool**—An English leg-support of the Eighteenth century.

**Grain**—Natural character of wood without any unusual figure.

**Graining**—A painting process of imitating oak, walnut, and other better woods in cheap woods.

**Grandfather Chair**—A large, upholstered, English, wing-chair.

**Grandfather Clock**—A long-case clock, having three distinct parts—the hood, covering dial and mechanism, the body, enclosing pendulum and weights, and the base.

**Grandmother Clock**—A long-case clock of the same form as the grandfather clock but of smaller dimensions.

**Grapes**—A carved ornamentation consisting of the leaves, stem and fruit of the grape-vine.

**Grate**—A framework of metal bars for holding burning fuel, often elaborately shaped and ornamented.

**Grecian Honeysuckle**—See Honeysuckle. Also called Anthemion.

**Greek**—A style of art of great restraint and beautiful proportion.

**Greek Fret**—Same as Greek Key Pattern.

**Greek Key Pattern**—A design composed of short lines terminating in right angles and forming a series of repeated hook-shaped forms.

**Griffin**—An imaginary creature, half eagle, half lion, used as a decorative feature.

**Grille**—A metal lattice work used in bookcase doors during the latter part of the Eighteenth century.

**Grisaille**—A style of painting done in shades of grey.

**Groove**—A channel or long hollow.

**Gros Point**—A pattern of embroidery used on upholstery material.

**Grotesque**—A conventional style of carving, forming figures of fantastic proportions.

**Ground**—The wood on which veneer is placed.

**Grounding Out**—The removing of the back-ground of a design in carved work.

**Gryphon**—Same as Griffin.

**Gueridon**—A small, light table for holding candlesticks or other small articles.

**Guilloche**—A style or ornament composed of interlacing bands enclosing circular forms.

**Hadley Chest**—An Early American chest having one or two drawers below the three panels in the front, the central one of which usually contained the initials of the owner.

**Half Headed Bed**—A bedstead having short posts without tester.

**Half Round Stay Log**—A stay log set off of center in a rotary lathe, used for cutting half round veneer.

**Hall Tree**—A high framework, usually of metal, with hooks and knobs for hanging coats, hats, etc., often with a place below for standing umbrellas.

**Halving In**—A term used to refer to the simplest connecting joint in cabinet work, which is used for a variety of purposes. The method is similar to mortising and tenoning with surfaces exposed.

**Hamlet Chair**—An old English, low-back armchair, elaborately carved and upholstered, said to have been used by James I when he sat for Mytens, the artist.

**Hammer**—A hand-implement with head at right angles to the handle, for driving nails, etc.

**Hand Blocking**—A process of dyeing a design in upholstery material.

**Handle**—Metal or wooden pulls, used on doors, drawers, etc., of various shapes and decorations.

**Hand Saw**—A saw of various types operated with the hands. Sometimes technically used to refer to a saw used to cut both ways.

**Hand-Screw**—A frame of wood with one or two wooden screws fitted into the frame so as to secure and tighten the frame when clamped to a piece.

**Hanging Cupboard**—An old English cupboard, considerably smaller than the standing cupboards of the same date.

**Hanging Stile**—The stile upon which a door is hung.

**Harlequin Table**—A dressing and writing table combined, much used during the latter part of the Eighteenth century.

**Harpsicord**—An old-fashioned musical instrument. A precursor of our modern piano.

**Harrateen**—See Harratine.

**Harratine**—An Eighteenth century linen fabric used for bed-hangings.

**Hassock**—A thick, cushioned footstool.

**Haunch**—Shoulder of a tenon.

**Headboards**—The head part of a wooden bed between the two side rails.

**Herculaneum**—A name used by Sheraton in reference to an upholstered chair of classical form.

**Herringbone**—A design for inlaying, etc., in which rows of slants alternate.

**High-Back Chairs**—Old English chairs, with high seats and arms, used by dignitaries and church officials.

**High-Boy**—A chest of drawers supported by a low-boy or table with drawers.

**High Light**—A term used in the finishing of furniture, when finishes are blended from a lighter to a darker shade or vice versa.

**High Relief**—Carving in which the design projects, at least in part, farther from the surface than in low relief.

**H-Hinge**—A hinge with long leaves or flat parts which when open form the letter H.

**Hinge**—A device used on doors, lids, etc., so as to allow them to swing out or away from their base.

**Hip**—Same as Knee.

**Hitchcock Chair**—An Early American chair, with straight turned front legs, back slightly tapering turned top rail and one broad slat, decorated by stencil work.

**Hock-Leg**—A style of cabriole leg with a curve and angle on the under part of the knee.

**Hogarth Chair**—A fine English chair of the Queen Anne type.

**Honeysuckle**—A conventional floral design used for decorating furniture.

**Hooded-Top**—Shaped top of a piece of furniture, usually of curved lines.

**Hoof-Foot**—A hoof-shaped termination of a leg.

**Hoop Back**—A chair back in which the uprights and top rail are one curved piece; also a Windsor bow back with arms.

**Horse-Hair**—A material woven from the coarse hair of horses, used for upholstery.

**Horseshoe Table**—An English table of the Eighteenth century, in the shape of a horseshoe.

**Hospital Furniture**—Furniture especially equipped for hospital use, of a plain and sanitary construction.

**Housing**—The grooving of one piece of wood into another.

**Huche**—A French word meaning a simple chest or hutch.

**Huchier**—Originally a maker of huches. After the Sixteenth century, a joiner or furniture maker.

**Humidor**—(Mod.) A smoker's cabinet containing a metal receptacle for keeping cigars, etc., in moisture.

**Hunting-Chair**—A Sheraton chair with square back and wings, also a slide in front for the tired hunter to rest upon.

**Husk Ornament**—A conventional design based upon the catkin flower, usually in the form of festoons.



**Hutch**—A chest; also a Gothic cupboard; (Mod.) See Hutch Cabinet.

**Hutch Cabinet**—(Mod.) A cabinet in the form of a chest, with doors in front, supported on a framework resembling a stand or table.

**Impost**—The top part of a pillar, or the like, upon which rests an arch.

**Incarnadine**—Shades of color from red to flesh.

**Incised Ornament**—Carved or engraved work cut deeply into the surface.

**Incrust**—To lay a hard surface of ornamental material over a main surface, a sort of veneering process.

**Indentation**—A zigzag moulding.

**Indian Mask**—A carved feature composed of a mask-shaped Indian face with feathered head-gear.

**Inlay**—A design formed in the surface of wood by the inserting of contrasting woods, ivory, or other materials.

**Intaglio**—A design cut into a surface, opposite of cameo.

**Intarsia**—A kind of mosaic work, much used by the Italians during the Fifteenth century.

**Intarsiatura**—See Intarsia.

**Interlaced Chair Back**—See Ribbon Back.

**Interrupted Arch**—An arch-shaped pediment the central part of which is cut away.

**Interrupted Pediment**—See Broken Pediment.

**In the White**—Cabinetwork before finish is applied.

**Intrados**—The inner line or surface of an arch.

**Inverted Cup**—A turned leg having an inverted cup-shaped bulge.

**Ionic**—Greek order of architecture, marked by scroll-like ornaments on capitals.

**Iron Rebate Plane**—Plane with one or two irons, used for planing rebates.

**Iron Shoulder Plane**—Metal plane for shooting shoulders, etc.

**Ivory**—The tusks of certain animals used for inlay and other decorative work.

**Ivory Black**—A staining material made from charred bone.

**Ivory Furniture**—Furniture made either of solid ivory or of ivory veneer.

**Jack Plane**—Plane used in preparing wood for try plane.

**Japanning**—Imitating Japanese lacquering by painting a figurative design over a subdued background.

**Jardiniere**—An ornamented wooden or metallic stand for flowers or plants.

**Jewel Cabinet**—A highly ornamental repository for jewelry.

**Jewelling**—The carving of an ornament on a surface so as to resemble a jewel.

**Jigger**—A fret saw.

**Joiner**—One who makes a specialty of joining wood, an important work in furniture making.



**Jointer Plane**—Iron plane with wood fittings, used for all kinds of plane work.

**Joint Stool**—A stool of the Tudor period, marked by mortised joints.

**Joint Table**—A table of Tudor times having mortised joints.

**Joyner**—An early form of the word joiner, meaning a furniture maker.

**Junior Lamp**—(Mod.) Lamp resembling the floor lamp but having a shorter pedestal.

**Kas**—A large Dutch cabinet or cupboard.

**Kerf**—See Saw-Kerf.

**Kettle-Front**—A William and Mary style of swelled front.

**Key**—The instrument for operating the lock; of various forms.

**Key-Cornered**—A type of long panel, broken into squares at the corners.

**Keyhole Saw**—See Pad Saw.

**Keying**—A process of strengthening a mitre joint.

**Key Pattern**—See Greek Key Pattern.

**Key Plate**—A small metal plate placed over key hole, usually matching the design of the other metal fittings.

**Key Stone**—The central wedge-shaped section of an arch, the piece which holds the other sections in place.

**Kidney-Table**—A dressing or writing-table of oval shape, the front of which has a concave curve.

**Kitchen Furniture**—A plain, compact form of furniture, made rather for utility than furnishing.

**Klismos**—Ancient Greek chair.

**Knee**—The uppermost part or curve of a leg.

**Knee-Hole**—A cavity or hollow in the front of a desk, etc., in which the sitter may place his legs.

**Knee-Hole Writing-Table**—See Pedestal Table.

**Knife-Boxes**—Small, decorated, lidded boxes, usually in pairs, made for placing on the ends of a sideboard to hold silver-ware.

**Knob**—A form of handle.

**Knob Turning**—A turning resembling a series of knobs or balls.

**Knop**—A bunch of flowers or leaves.

**Knuckle Joint**—A type of joint resembling a finger joint.

**Lace Box**—A small ornamented box for holding lace, of the Seventeenth century.

**Lacquer**—A varnish of high luster.

**Lacquer-Work**—See Japanning.

**Ladder-Back**—A chair-back with series of horizontal slats placed between the uprights.

**Lambrequin**—French term for the drapery around the top of a bed.

**Laminate**—To build up wood in layers; each layer being a lamination or ply. The construction of plywood. (See Veneers and Plywood.)

- Lamp**—A device for furnishing artificial light, made of wood, metal, or china, of many varieties, often elaborately decorated.
- Lampas**—A silk material used for upholstery and draperies, having a colored taffeta groundwork with a satin figure of contrasting color.
- Lamp-Stand**—A small wooden or metal stand, often tripod, on which to place small lamps.
- Lancashire Spindle-Back Chair**—An old English chair of curved lines and rush seat.
- Landscape Panel**—A panel with a horizontal grain.
- Lantern Clock**—Same as Birdcage Clock.
- Lathe**—A machine for shaping turned parts, such as legs.
- Lathorn**—A form of lantern used in the home.
- Lattice-Work**—An open-work of crossed-bars, either wood or metal.
- Laurelling**—A decorative feature using the laurel leaf motif.
- Lawn Furniture**—Light weight furniture, often of wicker, reed, etc., suitable for outdoor use.
- Leaf**—A part of a piece of furniture resembling a leaf in that it is wide, thin, and has a flat surface, such as the flat surface of a screen or the extension pieces of a table top.
- Leaf-Scroll Foot**—A carved scroll foot with a foliate design, also called leaf-shoe.
- Leaf-Work**—Eighteenth century decorating, consisting of foliate motifs.
- Leather**—Dressed hides used for upholstering, often stamped and colored.
- Leather Substitute**—Artificial leather, made of a prepared substance which is spread on a woven material and stamped any desired grain.
- Lectern**—An ecclesiastical reading desk.
- Leg**—The support upon which a piece of furniture rests, terminated by a foot, of infinite variety and often manifesting certain periods.
- Lettering**—The carving of an inscription or name on a piece of furniture, often carved in with a design, such as on old chests, etc.
- Library Chair**—Usually referring to a style of chair of solid wood with curved wood back, suitable for sitting at a desk or table.
- Library-Steps**—A piece of furniture used in a library or study for reaching books on high shelves, often in the form of a table and steps, or stool and steps combined.
- Library Table**—A large table often having compartments for placing books or papers.
- Lid**—The cover of a piece of furniture such as a chest, coffer, box, etc., usually hinged.
- Limewhitened**—In the Sixteenth century painted furniture was first whitened with a solution of lime.
- Linen Fold**—A carved or painted ornament resembling folds of linen; originating from folded napkin placed on the chalice at consecration of the Host in Catholic Ritual. Found in Gothic ornament.

**Linen Press**—A cabinet or cupboard in which to place household linens.

**Lining**—A narrow banding.

**Lining Up**—The process of strengthening and thickening a top by placing a moulding around the under edge.

**Lion-Mask**—A carved motif in the form of a lion's head, often found on the knee of a cabriole leg.

**Lion's Paw Foot**—A foot of that shape.

**Lip Moulding**—A small convex moulding often placed around drawers.

**Listel**—Same as Fillet.

**Livery Cupboard**—An old English food cupboard.

**Lobe**—A section in rounded form.

**Lock**—A device for securing a door, lid, etc., so that it can only be opened by a key.

**Locker**—A chest, cabinet, cupboard, or the like, fitted with a lock.

**Locking Stile**—The stile of a door into which the lock is fitted.

**Lodge Furniture**—A rustic type of furniture, usually made to display crude workmanship.

**Long-Case Clock**—Better known as Grandfather Clock.

**Looking-Glass**—Same as Mirror.

**Loop-Back**—Same as an oval back; also a Windsor bow back without arms.

**Loop Hinge**—An early style of hinge formed by two interlocking loops.

**Loose Seat**—An upholstered seat placed into a seat framing but not made stationary.

**Loose Seat Cushions (Uphol.)**—Literally what the name implies, a loose cushion of down or other soft material which completes the upholstering of the seat.

**Loo Tables**—Oval-shaped game tables for playing loo.

**Loper**—The device for supporting a drop-front; also the runners of an extension table.

**Lotus**—A classic ornamentation formed from the Egyptian water lily.

**Lounge**—A style of day-bed resembling a couch.

**Love Seat**—Same as Courting Chair.

**Low-Back Chair**—See Cromwellian Chair.

**Low-Boy**—An English dressing-table or small table with several drawers down the front.

**Low Relief**—Carving in which the design projects but slightly from the surface.

**Lozenge**—Diamond-shaped decorative motif or panel.

**Lunette**—A crescent-shaped ornament.

**Luster**—A chandelier with glass pendants.

**Lyre**—A decorative motif, shaped like the musical instrument of that name.

**Lyre Back**—A chair back shaped like the musical instrument, the lyre, an Adam style.

**Lyre Support**—The center support of a table in the shape of the musical instrument, the lyre.

**Magazine Basket**—(Mod.) A low, wooden piece of furniture usually divided into two sections for holding magazines.

**Magazine Stand**—(Mod.) A light stand of several shelves for holding magazines.

**Mallet**—A wooden hammer of various sizes.

**Manchette**—A French term meaning the upholstered cushion on the arm of a chair.

**Mantel Mirror**—A long glass suitable for hanging above a mantel.

**Marble**—A stone, slabs of which were formerly much used for tops of tables, dressers, etc.

**Marbling**—Painting wood in imitation of marble.

**Marking Awl**—As the name suggests, a pointed steel instrument for "marking" out, especially on hard woods.

**Marking Gauge**—A wooden gauge with box screw and metal pin for marking.

**Marking Knife**—A knife used as the marking awl, especially for soft woods.

**Marlborough Leg**—A turned or square tapering leg terminating in a spade foot.

**Marquetry**—An inlay of contrasting wood or other material into a background of veneer.

**Marquise Chair**—A wide, upholstered, French armchair.

**Marriage Coffin**—See Dower Chest.

**Mascaron**—A mask decoration of a human head.

**Mask**—A decorative motif in the form of an animal or human face, either contorted or natural.

**Mason's Mitre**—An early form of joinery used on panel mouldings.

**Masque**—Same as Mask.

**Matted**—Referring to the rough background of carved oak.

**Mattress**—A thick pad or cushion, stuffed with feathers, cotton, wool, hair, or the like, and placed upon the springs of a bed.

**Meander Pattern**—Same as Greek Key Pattern.

**Medallion**—A circular or oval carved ornament.

**Mellon-Shaped Foot**—A bulbous form of foot, found in the Elizabethan period.

**Menuisier**—French word for joiner or cabinetmaker.

**Meridienne**—A French sofa, one side of which is higher than the other.

**Metal Furniture**—Furniture of which the whole or greater part is made of metal, such as an iron bedstead or fire screen.

**Mirror**—An object having a reflecting surface, usually made of glass, often placed on bedroom and other furniture.

**Mitre**—Two sections of wood cut obliquely to form an angle.

**Mitre Box**—An apparatus for guiding the cutting of mitre joints.

**Mitre Plane**—Plane for shooting mitres, with single iron pitched low.

**Mixing Table**—A side table with compartments for bottles, etc., used in the dining room for mixing drinks.

**Modillion**—A series of ornamented brackets placed at regular distances below a cornice.

**Mohair**—A fabric for upholstering, originally made from the hair of an Angora goat.

**Money Dishes**—Sunken pockets or saucers in card-tables used for holding money or counters.

**Monk's Seat**—See Table Chair.

**Moquette**—A woolen material having a short velvety pile, used as a covering in upholstery.

**Moreen**—A wool or wool and cotton fabric used in upholstering and bed hangings.

**Moresque**—A Moorish style of decoration, marked by high coloring and gilding.

**Morine**—See Moreen.

**Morris Chair**—A large easy chair with an adjustable back and cushions to fit the seat and back.

**Mortise**—To join wood together by means of tenon and mortise, tenons being the projections and mortises, the holes into which the projections fit.

**Mortlake Tapestry**—An English silk tapestry.

**Mosaic**—Inlay work composed of small pieces of glass, stone, metal, etc., forming a conventional pattern.

**Moss**—A vegetable material grown in the southern states, used in place of curled hair as a stuffing.

**Moss Edge**—A decorative edge, made of a heavy pile material, used in upholstery.

**Mother-of-Pearl**—The hard internal layer of certain shells, chiefly used as an inlay.

**Motif**—The controlling idea or leading feature in a piece of work.

**Mottled**—In veneer, a blotched or spotted figure.

**Moulding Planes**—Small planes of various sizes, shapes, and widths.

**Mouldings**—Ornamented or shaped strips either made or applied on furniture.

**Mounts**—Fittings and other ornamented pieces, usually made of metal, placed on furniture to decorate and strengthen.

**Mudejar**—A style of the Seventeenth century, of Moorish and European characteristics.

**Mule Chest**—A chest with one to four drawers beneath; dower chests were often of this type.

**Mullion**—See Muntins.

**Munting**—See Muntins.

**Muntins**—The inside vertical part of a frame, such as the vertical divisions between the panels of a door.

**Mushroom Turning**—A turning resembling the inverted cup but of greater area and less depth.

**Music Desk**—A name formerly used to refer to a music stand.

**Music Stand**—A stand for holding music before the player.

**Nail Heads**—The heads of nails used in upholstering, often ornamented or covered.

**Nebuly**—Having waving lines.

**Necking**—A narrow moulding extending around the upper part of a column, pillar or the like.

**Needlepoint**—An embroidery of woolen threads upon canvas, used as a covering in upholstery.

**Needlework**—Hand embroidery work used for hangings and upholstery.

**Nest of Drawers**—See Chest of Drawers.

**Nested Tables**—A set of tables, usually of four, made to fit one into the other when not in use.

**Niche**—A small recess in a cabinet for holding a statuette or the like.

**Nicking**—See Notching.

**Night Stand**—(Mod.) A small stand used for the same purpose as the night table.

**Night-Stool**—An enclosed stool.

**Night Table**—(Mod.) A small bedroom table placed near the bed, principally to hold a lamp for reading.

**Nonesuch Chest**—A chest ornamented with scene of Palace of Nonesuch, Henry VIII's palace at Cheam.

**Notching**—A form of decoration formerly used on oak furniture.

**Nulling**—A projecting detail in carving, often in a series.

**Nursery Furniture**—Small, light, gay furniture suitable for children.

**Occasional Furniture**—Small furniture of various shapes and uses. In modern times more particularly furniture for the living room and reception hall.

**Octagonal Leg**—A trumpet-shaped leg of eight sides.

**Official Furniture**—A practical type of furniture made for equipping the business office.

**Ogee**—A moulding having a cyma curve; also a form composed of two S-shaped curves, the convex curves meet in a point.

**Ogee Bracket Foot**—A bracket foot formed of a cyma reversa moulding.

**Ogive**—A pointed arch. (Adj. Ogival.)

**Oilstone**—A smooth stone used, when moistened with oil, for sharpening tools, etc.

**"Old Woman's Tooth"**—See Router.

**Ombre Table**—An English game table of the Eighteenth century. Ombre later became Whist.

**One-Drawer Chest**—A chest having one long drawer beneath the box section.

**Onion Foot**—A bulbous foot of oval shape.

**Onlay**—Ornament laid on surface woods.

**Open-Work**—Any form of decoration that pierces or cuts through the surface leaving open spaces.

**Organ-Case**—The case of a private or church organ, made by Chippendale, now often made over into cabinets, fireplaces, etc.

**Ormolu**—A metal composition resembling gold, used for mounts on furniture.

**Ornament**—A part of the decoration of a piece of furniture, of various kinds, often determining the period or influence of the article.

**Ottoman**—A long upholstered seat or couch, having neither arms nor back.

**Oval Back**—A chair back of rounded shape, usually connected with Hepplewhite along with his famous shield and heart backs.

**Overlapping Drawer**—A drawer that does not fit flush with the frame but overlaps, often with a thumb moulding.

**Overstuffed Furniture**—Furniture which is completely upholstered and stuffed to give a bulky, massive appearance.

**Overt**—A word meaning open, such as the spread wings of a bird.

**Ovolo**—A quarter-round convex moulding.

**Oxidising**—The finish given to metalwork by means of an acid solution.

**Oystering**—The using of a veneer cut from the roots and boughs of certain trees.

**Ozier Mats**—English mats placed on the benches of royalty in olden times.

**Pad Foot**—A flat-shaped foot, resembling a club foot without its disc-like base.

**Pad Saw**—A type of hand saw with narrow tapering blade. The pad or socket into which the blade fits when not in use also serves as a handle.

**Pagoda**—A tower-shaped roof or top, a feature of cabinets, cupboards, etc., designed by Chippendale and others, showing Chinese influence.

**Painted Furniture**—Furniture either ornamented or covered with paint, such as lacquer, enamel, etc.

**Paktong**—A metal composition made in China, resembling silver, used for candlesticks, fireirons, and other metalwork.

**Palmated Scroll**—A scroll with branching elaborations.

**Palmette**—A conventional design of various forms, representing the palm leaf.

**Palmetto Fiber**—See African Fiber.

**Panel**—A surface set above or below the general surface of a piece of furniture, or effected by means of applied mouldings.

**Panel-Back Chair**—See Wainscot Chair.

**Panel Saw**—A type of hand saw with fine teeth, used for cutting thin wood.

**Panne**—A word used to refer to a fabric (as velvet) with pile pressed flat to the surface.

**Paper Furniture**—A name sometimes used to refer to a type of fiber furniture.

**Paper Scroll**—A small scroll much used during the first half of the Eighteenth century.

**Papier Mache**—A composition used to make small articles of decorative furniture during the Eighteenth century.

**Parcel Gilding**—The gilding of certain parts of carving.



**Parchment Panel**—A panel having a linen-fold design.

**Parquetry**—Wooden mosaic used on decorated furniture.

**Partition**—A division between two parts of a piece of furniture.

**Patera**—A small round or oval carved ornament.

**Patina**—The dark color and rich appearance of the wood in furniture, caused by age.

**Paw Foot**—A foot shaped like an animal's paw.

**Paw-and-Ball Foot**—A foot shaped like the claw-and-ball foot but having an animal's paw in place of the claw.

**Peacock Chair**—A woven lawn chair with a huge fan-shaped back, resembling the tail of the peacock when spread.

**Pear-Drop Handle**—A pear-shaped drop handle made of metal.

**Pear-Drop Ornament**—Pear-shaped knobs supporting a small arcade along a cornice.

**Pearl Edge**—A moulding formed by pearling.

**Pearling**—The carving of a series of small circles or ovals.

**Pear-Shaped Leg**—See Trumpet-Shaped Leg.

**Pebble and Splash**—A term sometimes used to refer to Rococo.

**Peche Mortel**—A couch resembling the duchesse or chaise-longue.

**Pedestal**—A small light stand or base for supporting a vase, statuette, or the like.

**Pedestal Table**—A Chippendale writing-table with drawers and knee-hole in front, usually decorated on all four sides.

**Pediment**—An ornamented structure placed above the cornice of cupboards, etc., usually triangular in shape.

**Pegs**—Wooden nails or pins for holding together parts of furniture.

**Peitra Dura**—Inlay in marble.

**Pellets**—Wooden plugs placed over screw-heads to form a wooden surface.

**Pelmet**—A sort of valance curtain placed so as to cover the rod on beds, etc.

**Pembroke**—A small light table with two bracketed side flaps, and a small drawer in front.

**Pendant**—Any style of hanging ornament.

**Period**—A definite stage of furniture development or change.

**Petit Point**—A pattern of embroidery used on a silk upholstery fabric.

**Phonograph**—(Mod.) A piece of cabinet furniture enclosing the apparatus for reproducing sound, usually with compartments for records.

**Piano**—A modern musical instrument, composed of wire strings which are struck by felt hammers, made to strike by means of a keyboard.

**Pianoforte**—A musical instrument resembling the modern piano.

**Piano Bench**—A long, rectangular seat, usually with a hollow for sheet-music, placed before the piano for the player or players.



**Piano Lamp**—(Mod.) See Floor Lamp.

**Piano Stool**—A round or square, adjustable seat, sometimes upholstered, for sitting at the piano.

**Picked-Out Carving**—A term used to refer to a process of renovating old carving which has been worn down to the surface.

**Piece-Dyed**—Material that has been colored in the piece as distinct from "yarn" dyed, which means the threads themselves were colored before weaving.

**Pie-Crust Table**—A small round-top table, so named because of its slightly raised and scalloped edge; often a Chippendale tripod table.

**Pied de Biche**—See Cloven Foot.

**Pier**—A square detached column.

**Pierced Work**—A style of decoration in which parts of the design are cut out, leaving an openwork pattern.

**Piercing**—The process of cutting a design through a surface.

**Pier Glass**—A long narrow mirror hung between two windows, with a pier table beneath.

**Pier Table**—A small side table, usually oval in front, with four legs, designed to match the accompanying pier glass; also called a console table.

**Pietra-Dura**—A form of polished inlay.

**Pigeon Holes**—Small divisions or compartments in desks, etc., for placing papers.

**Pilaster**—A carved, flat column attached to the surface of a piece of furniture.

**Pile**—The upright threads of a fabric which are of three kinds, cut, looped, or curled. Cut-pile, as in velvet; loop-pile, as in uncut velvet; curled-pile, as in imitation fur.

**Pillar**—See Column.

**Pillar-and-Claw**—A table support consisting of a pillar-shaped leg with a foot usually of four claws, popular during Sheraton period.

**Pin**—A small peg or wooden nail.

**Pincers**—A jointed instrument with two handles and a pair of grasping jaws for holding an object.

**Pineapple**—A pattern used in carving, resembling the lines in the fruit of the pineapple tree; also the leaves and shape of the fruit.

**Pin-Hinges**—An early type of hinge formed by pins or pegs fastened to the back part of the sides of a chest or the like, and into the sides of the lid near the back, forming a sort of pivot upon and around which the lid can swing.

**Pinnacle**—A carved ornament placed at the top of a piece of furniture.

**Pique**—A French form of inlay.

**Pitch**—The angle or slant of a plane iron.

**Planted**—A means of fixing moulding to a surface.

**Plaque**—A medallion or disk made of porcelain, or other such material, used as a decorative feature of furniture.

**Plate**—The flat metallic piece which fits over the hole for a handle or key.

**Plate Tracery**—See page 103, figure 4.

**Plinth**—The base block or slab of a column, pedestal, etc.; also the bottom part of the carcase.

**Plough**—Type of adjustable plane with set of irons.

**Plush**—A fabric with long, cut pile.

**Ply**—A layer or thickness, such as one of the layers of wood in plywood. A sheet of veneer or lumber.

**Plywood**—Wood built up of multiple plies. (See "Veneers and Plywood.")

**Pocketing**—A method of concealing screw-heads.

**Poker-Work**—A form of burnt work.

**Pole Screen**—See Fire Screen.

**Polishing**—Producing a smooth and glossy finish on furniture by means of friction and a polishing substance.

**Polychrome**—A form of painted ornamentation originating in Egypt and much used in Italy during the Sixteenth century.

**Porcelain Decoration**—Plaques made of porcelain.

**Porch Furniture**—Furniture usually of the woven type, suitable for porch or outdoor wear.

**Portiere**—A curtain used in place of a door.

**Portuguese Bulb**—A protuberant form in turned work, especially found on the legs and stretchers of chairs.

**Posts**—The uprights of poster beds, often supporting a tester; also used to refer to the upright corner pieces of any article of furniture; the projecting pieces of a handle which fit into the holes of a frame and secure the handle.

**Potboard**—A shelf in the lower part of a commode.

**Porch Table**—A small sewing table, or writing and work-table combined.

**Pouf**—A French style of stool standing as high as a chair, with stuffed upholstered seat and fringe hanging to the floor, usually round in form.

**Pounce**—A substance used for marking designs to be cut for marquetry.

**Powder Table**—A form of dressing-table.

**Premiere Partie**—A term used in reference to Boulle work when tortoise-shell predominates.

**Press**—A wardrobe or cupboard for storing clothing, books, or the like.

**Press Bedstead**—A folding bedstead.

**Pricking**—A method of marking a pattern on wood by fine holes.

**Prie-Dieu Chair**—A high-back prayer chair with rail or pad for resting the elbows while kneeling in the seat, and a space under the seat for books.

**Prince of Wales' Feathers**—A decorative device, used by Hepplewhite, consisting of three plumes or feathers.

**Princess Dresser**—A low dresser with one or two drawers and long swinging mirror.

**Profile**—The outline of a piece of furniture.

**Projection**—An extending or overhanging part.

**Prong-Boxes**—Cases for holding forks, resembling and often matching knife-boxes and spoon-cases.

**Pull-Down Front**—The drop front of a desk, or a front which rolls back disclosing the desk proper and comes forward to cover or close.

**Pull-Up Chair**—A small armchair of the occasional furniture type.

**Pulvinated Frieze**—A swelled or convexly curved frieze.

**Purse**—See Till.

**Puritan**—A period in English furniture better known as Cromwellian, see page 175.

**Quadrant**—A metal contrivance for supporting drop fronts.

**Quarrels**—See Quarries.

**Quarries**—Small square or lozenge-shaped panes of glass, plain or decorated, forming the glass fronts of Eighteenth century bookcases.

**Quartered**—A method of cutting a log of wood to obtain a certain grain.

**Quartette Tables**—Nested tables of four.

**Quatrefoil**—A conventional four-leaf clover design.

**Quirk**—A small groove or angular channel, such as formed between the beads in a moulding.

**Quirk Bead**—A bead moulding separated from the surface on one side by a groove. A double quirk bead means a groove on each side of the bead.

**Rabbet**—See Rebate.

**Rack**—A frame for holding books, magazines, etc., either a piece of furniture in itself or a part of a table, stand, etc.

**Radial Bar**—An instrument for making large curves.

**Radio Cabinet**—(Mod.) A cabinet enclosing a radio instrument with dial board in front and often a drawer or drawers below.

**Radio Table**—(Mod.)—A table suitable for holding a radio, often with drawers.

**Raffia**—A fiber for woven furniture.

**Rails**—Wood or metal bars usually placed in furniture for the purpose of strengthening, such as stretchers, top rails, etc.

**Rainceau**—Intertwining stems and leaves. An ornamentation much used by the Adams.

**Raised Carving**—Carving in which the design is formed by raised surfaces of varying height.

**Rake**—The slant of a chair back, or the like.

**Ram's Head**—A decorative motif of that form.

**Random Joints**—Joints made in veneer without reference to the veneer being of equal width.

**Range Tables**—A group of small tables which when placed together formed one long table.

**Rasp**—A file-like tool having, in place of cutting edges across the surface, coarse pyramidal projections of cutting points.

**Rat Claw Foot**—A foot in the form of a rat's claw, usually grasping a ball.

- Rayonnant**—Ornamented by radiating lines. A term applied to a period of Gothic ornamentation.
- Reading-Desk**—See Reading-Stand.
- Reading-Stand**—A small table, usually with an adjustable top, for holding a book, popular during the Eighteenth century.
- Real and Bead**—A moulding design consisting of alternating small narrow ovals and small circles or beads.
- Rebate**—A rectangular groove cut in wood for the purpose of joining, or holding a frame.
- Recessed Stretcher**—A stretcher placed in the center of a chair to form a tie between two side stretchers.
- Record Cabinet**—(Mod.) A cabinet with compartments for phonograph records.
- Redented**—An edge formed of angles such as the edge of a saw.
- Reeded Leg**—A straight leg having a series of small circular mouldings running its length, a Sheraton feature.
- Reed Furniture**—A type of woven furniture.
- Reeding**—A raised series of semi-circular mouldings, somewhat resembling a reversed fluting.
- Reed Top**—A desk top which rolls back, made of a series of narrow mouldings or reeds.
- Refectory Table**—A large dining table of early date, built long and narrow with a heavy stretcher close to the floor.
- Regency**—A period in French furniture. (See page 198.)
- Reject Backs**—Backs of plywood veneer showing defects. Opposite to sound backs.
- Relief**—Carving in which the design is raised above the surface.
- Renaissance**—A new birth or revival of art which designates an important period in furniture. See page 37.
- Rep**—A corded fabric used for upholstering.
- Replica**—See Copies.
- Repousse**—See Chasing.
- Reproductions**—A general term used to refer to any kind of reproduced furniture, usually of the historic periods.
- Restoration**—A period in English furniture. See page 179.
- Restoration Chair**—A caned, high-back chair with turned legs and a carved design on top rail and front stretcher.
- Reticulate**—To make into or have the form of network.
- Reversed Serpentine Front**—A front shaped with a waving curve, concave in the center.
- Revolving Chair**—A chair with device which allows the seat and upper part to revolve around on the base.
- Riband**—A decoration representing strips of ribbon in folded and gathered forms.
- Riband-Back**—A chair back with an ornament carved to represent ribbon tied and gathered in various shapes; characteristic of Chippendale.
- Ribbon and Stick**—Decorative motif representing a stick wound with ribbon.

**"Ribbon" Effect**—A stripe in wood, manifested in mahogany by the softer and more feathery portion alternating with the plainer, harder portions.

**Riffler**—A curved file used in carving.

**Rim**—The top edge of a piece of furniture.

**Rimer**—A square or semi-circular tapering bit for enlarging.

**Rip Saw**—A type of hand or machine saw with coarse teeth.

**Rising-Stretchers**—Cross or X-shaped stretchers which form a convex curve at their intersection.

**Rising Sun Pattern**—A design of radiating lines resembling the fan design.

**Rocaille**—Same as Rococo.

**Rocker**—Same as Rocking-Chair.

**Rockers**—Curved pieces of wood upon which chairs, cradles, etc., are placed for rocking.

**Rocking Chair**—A chair supported on rockers so as to allow the occupant to either rock back and forth or to sit at a comfortable slant.

**Rococo**—Style of decoration distinguished by a delicately executed ornament in imitation of rockwork, shells, foliage and scrolls massed together.

**Rod**—A working drawing in cabinet work.

**Roe**—A figure in the grain of veneer, resembling fish roe.

**Roll-Over Arms**—Solid upholstered arms, slightly curving or rolling away from the seat.

**Roll-Top Desk**—A desk, the top or front of which is made of a series of slats devised so as to allow it to roll up or down over the desk.

**Romayne**—An Italian form of ornamentation consisting of human heads set in medallions.

**Rose Pattern**—A design resembling the rosette but of fewer lines, more on the order of a conventionalized single rose.

**Rosette**—A rose-shaped patera.

**Rotten Stone**—A soft stone used in polishing.

**Roughing Plane**—Iron plane for cleaning surfaces of rough boards.

**Roundabout**—A chair built so as to have one leg in front, one in back, and one on each side, with the extension of the two side legs and back leg forming the supports for a circular back.

**Roundel**—A term used in furniture to refer to any circular ornament, such as a medallion, patera, rosette, etc.

**Router**—Type of plane made of wood with iron, used for grooves across grain.

**Rudd's Dressing-Table**—A dressing-table of very complete design.

**Rule**—A straight-edged instrument for use in measuring, or as a guide in drawing lines. A ruler.

**Rule Joint**—A hinged joint, largely used for table flaps.

**Runner**—A term used to refer to the rocker of a rocking chair.

**Runners**—A device for sliding a drawer, made up of grooves and small strips of moulding under the drawer.

**Running Dog**—Same as Vitruvian Scroll.

**Rush**—The stems of a marsh-growing plant, used for chair seats since early times.

**Rush-Bottom Chair**—A chair with a rush seat.

**Sack Back**—A Windsor chair with a double bow back.

**Saddle-Check**—A style of forty-wink-chair used in the bedroom.

**Saddle Seat**—The seat of a Windsor chair with the thickest part in the center front and the sides either spooned out or sloping away from center.

**Safe**—A heavy box-shaped piece of furniture, formerly made of wood with metal fittings, now made wholly of metal, for the safe keeping of valuables.

**Sag**—A concave curve in shelves or the like caused by weight.

**Salient Angle**—An angle or corner extending beyond the general line of a piece of furniture.

**Saltire**—Straight X-shaped stretcher.

**Samite**—A rich upholstery fabric of silk and gold threads, mostly used previous to the Sixteenth century.

**Sand Bag**—A means of using sand for curving veneer.

**Sand-Shaking**—A process of darkening wood for inlay by means of hot sand.

**Sarcophagus**—See Wine Cooler.

**Sash Bars**—The framework surrounding a glass door.

**Sateen**—A cotton fabric with satin-like surface.

**Satin**—A silk material for draperies and upholstery.

**Satyr Mask**—A mask motif representing the mythical creature, Satyr.

**Sausage Turning**—A form of turning resembling a series of oval or sausage-shaped forms placed end to end.

**Saw**—A cutting-instrument with teeth arranged continuously along the edge of the blade or circumference of disk.

**Saw-Kerf**—That part of a tree lost in sawing, namely, the width of saw teeth as lost in saw dust.

**Saw Set**—A small instrument for bending or setting the teeth of a saw.

**Scagliola**—A hard polished plasterwork imitating marble, granite or other stone.

**Scale Pattern**—A decorative design resembling the scales of a fish.

**Scaling**—Ornamenting with the scale pattern.

**Scallop**—A carved design for edges or borders resembling the scallop shell.

**Scamnum**—Roman bench.

**School**—A distinct method or fashion in furniture either effected by the maker, designer, or country in which it is made.

**Scissors-Chair**—See Faldstool.

**Sconce**—A candle-holder attached to a frame or wall.

**Scotia**—A concave, classic moulding.

**Scratch Carving**—A carved design formed by fine lines.

**Screen**—A light framework covered with silk or other material for obstructing light, heat or cold, made in numerous varieties.

**Screened Crib**—(Mod.) A baby's crib with high screened sides and top.

**Screen-Table**—A small table used in front of the fireplace, the top of which when turned down in an upright position forms a screen.

**Screwdriver**—A tool of various shapes and sizes, used for driving screws.

**Screws**—A kind of nail with a spiral groove along its length, used for securing parts in the cheaper makes of furniture.

**Scribing**—Method of fitting joints.

**Scriptoire**—Same as Secretary.

**Scritoire**—Same as Secretary.

**Scroll**—A spiral line, often suggestive of plant life, used for ornamentation.

**Scroll Column Chest of Drawers**—A chest of drawers with a projecting vertical scroll at each end of the front.

**Scroll Foot**—A foot in the form of a spiral scroll either at back of the leg or in front.

**Scroll Top**—A broken pediment top formed by two cyma curves.

**S-Scroll**—An S-shaped curve in a scroll.

**Scrowled Chair**—An old English chair of massive construction.

**Scrutoire**—An old enclosed writing-desk.

**Seat**—The horizontal surface of a chair, the part on which one sits, variant in style.

**Seat Stretcher**—In reference to the frame of an upholstered davenport, a strip of wood connecting the front and back rails to strengthen the structure.

**Seaweed Marquetry**—A marquetry of delicate design resembling fine marine plant-life.

**Secrétaire**—See Secretary.

**Secretary**—A writing-desk and bookcase combined.

**Secret Drawer**—A small drawer or hiding place concealed within the carcase of a piece of furniture, of enumerable styles and contrivances.

**Section**—A part of a piece of furniture, or the line or plan of a piece of furniture where it is intersected by a straight line.

**Sectional Bookcase**—A bookcase with cases built individually or as sections, which when placed one on the other form the complete bookcase.

**Sedan Chair**—An enclosed, portable chair for carrying a person in the street or an invalid in the house.

**Segmental Corners**—Panel corners which are broken by curved lines.

**Segmental Pediment**—An unbroken, curved pediment.



**Segment Saws**—Used in sawing veneer. The number of segments used is 72. These segments are fastened to the edge of a steel disc and are used particularly in quarter sawing oak veneers. (See "Veneers and Plywood.")

**Seigneurial Chair**—A stately high-back chair for dignitaries, often having a compartment under the seat.

**Seraph**—A decorative figure in the form of an angel of the highest order.

**Seraphim**—Plural of seraph.

**Serpentine Curve**—A wave-like scroll consisting of two concave curves with convex curve between.

**Serpentine Front**—A front shaped with a waving curve, usually convex in the center.

**Serrated**—An edge notched or cut as the teeth of a saw.

**Server**—(Mod.) A style of tea wagon used for serving; a side or serving table is also called a server.

**Service Cupboard**—An old English ventilated cupboard, also called livery cupboard and in churches, dole cupboard.

**Serving Table**—A piece of dining-room furniture in the form of a side table, usually having one row of drawers.

**Settee**—A long upholstered seat with side arms and back, a forerunner of the modern davenport.

**Settle**—A long seat or bench with a high back and usually arms, a precursor of the settee.

**Sevres**—French porcelain used for plaque decoration.

**Sewing Cabinet**—A piece of cabinet furniture for holding sewing materials, of various styles and shapes.

**Sewing Table**—A table with drawers and compartments for holding sewing articles.

**Shaded Marquetry**—Marquetry shaded by means of hot sand.

**Shagreen**—A rough skin usually dyed green, for covering small boxes and other small furniture.

**Shaving Table**—A style of dressing-table for men, composed of many clever contrivances.

**Shear Cut**—A knife cut made in veneer with shear or drawing motion such as is made by paper knife cutter.

**Sheldon's Tapestry**—An English Tapestry.

**Shelf**—A board or other flat surface placed horizontally in a piece of furniture for the purpose of supporting books or other articles.

**Shellac**—A paint substance of crude lac.

**Shell Foot**—A shell-shaped leg terminal.

**Shell Ornament**—A carved design in the form of a cockle-shell either convex or concave.

**Shell-Rock**—A design of ornamentation composed of shell and rock details.

**Shepherdess' Chair**—See Bergere.

**Sheveret**—A French style of writing-table popular during the last part of the Eighteenth century.

**Shield-Back Chair**—A chair with a shield-shaped back, a common back of Hepplewhite.

**Shoe**—A small disc under a foot.



**Shoe-Piece**—A projecting piece on the back part of a chair seat for holding the splat.

**Shoulder**—The knee of a cabriole leg; also the projecting corners of a tenon.

**Show-Table**—A Chinese Chippendale fretwork table, small with gallery round top.

**Show-Wood**—Any type of upholstered furniture, the frame of which shows after it has been upholstered. Is distinguished from over-stuffed furniture, the frame of which is completely covered.

**Siamoise**—A form of upholstered sofa or armchairs, consisting of two or three chairs joined together at the arm forming an S-shape or as the name suggests like the Siamese twins.

**Side Chair**—A small chair without arms.

**Sideboard**—A piece of dining-room furniture with compartments, shelves, and drawers, used for holding and displaying articles for the table.

**Side Center Rail**—In upholstered furniture frames, strip of wood between back and front posts over which upholstery is drawn.

**Side Rail**—Piece connecting back and front posts in upholstered furniture frames.

**Side Rails**—The parts of a bed which extend along the sides between the head and foot parts.

**Side Rail Strip**—A piece fixed to the side rail of a bed for supporting the slats.

**Side Rebate Planes**—Pair of planes, right and left, used for sides of grooves or rebates.

**Side Table**—A small ornamental table, made to be placed against the wall; as a piece of dining-room furniture, see Serving Table.

**Silk**—Material of fine, glossy texture, made in various weaves and colors, for upholstery and hangings.

**Silver Furniture**—Small metal furniture, either solid or covered with silver.

**Silvering Glass**—The process of coating the surface of a piece of glass with quicksilver to produce a mirror.

**Single Arch Mouldings**—A large rounded moulding used during the latter part of the Seventeenth century above the drawers of dressers, etc.

**Single Chair**—Same as Side Chair.

**Sirens**—Ornamental figures in the form of creatures half woman, half bird.

**Skirt**—See Apron.

**Skiver**—A split leather, of inferior quality.

**Slat-Back Chair**—See Ladder-Back Chair.

**Slate Table**—A term sometimes used to refer to a slate top table with broad ornamented frame.

**Slats**—Strips of wood placed across a bed, supported by side rail strips, for holding the springs; also the cross-bars in a chair back used to strengthen the framework and support the back of the sitter.

**Sleepy-Hollow Chair**—A large upholstered chair with high sloped back, solid low arms, and a seat dipped or hollowed in the center.

**Sleigh Bed**—Same as French Bed.

**Slide**—A shelf fitted into the carcass so as to slide in and out for use.

**Slider**—See Coaster.

**Sliders**—Metal discs or slides placed under the feet or base of furniture for greater ease in sliding along the floor.

**Slipper Chair**—A chair with low legs.

**Slipper Foot**—A narrow protruding club foot.

**Slip Seat**—An upholstered frame fitting into the seat frame.

**Slot Screwing**—A method of hiding screw heads.

**Small Chair**—Same as Side Chair.

**Smoker**—(Mod.) See Smoker's Cabinet.

**Smoker's Cabinet**—(Mod.) A small, low cabinet with compartments, and often trays above, for holding the tobacco, pipes, etc., of the smoker.

**Smoker's Stand**—(Mod.) A light stand with ash tray, etc., placed near the chair of the smoker.

**Smoothing Plane**—As the name suggests, a plane used for smoothing or finishing.

**Snake-Foot**—A slender, curved foot with slight swell at the base.

**Snap Table**—Chippendale tripod table, the top of which snaps when folded over.

**Socketing**—A method of joining by means of wedging one piece of wood into the cavity of another.

**Socle**—A plain, square, unmoulded block, higher than a plinth, supporting a statue or the like.

**Sofa**—A long seat or settee, with stuffed upholstered seat, back and arms; precursor of the modern davenport.

**Sofa Table**—A long, narrow table with hinged end flaps and drawers.

**Soffit**—The under side of a moulding.

**Sole**—The base or bottom of a plane.

**Somnoe**—(Mod.) A small night table.

**Sound Backs**—Backs of plywood veneer showing no defects. Opposite to reject backs.

**Spade Foot**—A rectangular-shaped foot slightly smaller at the base; a Hepplewhite detail.

**Spandrel**—The space, resembling a triangle, between the curve of an arch and the right angle of a surrounding moulding.

**Spanish Chair**—A carved, high-backed armchair, with upholstered seat and back, popular during the Sixteenth century.

**Spanish Foot**—A rectangular-shaped foot slightly larger at the base, with narrow mouldings down the front.

**Spanish Work**—See Black Work.

**Span-Rail**—A curved or otherwise shaped rail extending between two uprights.

**Sparver**—A tester or canopy.

**Sphinx**—An ornamental feature representing a mythical winged monster, half woman and half lion.

**Spice Cupboard**—A small, ornamented, hanging cupboard for storing spices, herbs, and the like.

**Spindle**—A slender turned rod, slightly tapering to the ends, used in chair backs, balustrades, etc.

**Spinnet**—A musical instrument resembling the harpsichord.

**Spinetary**—A spinet desk with bookcase above.

**Spinet Desk**—A writing-desk resembling the old spinet musical instrument.

**Spinning Wheel**—A household implement formerly used for spinning thread; now used as an ornament.

**Spiral**—A decorative motif consisting of a curved line around a given point and constantly receding from that point.

**Spiral Evolute**—A series of turning, wave-like scrolls, used as a decorative feature.

**Spiral Leg**—A spiral turned leg.

**Spiral Turning**—A twisted form of turning, resembling a screw.

**Splad**—Same as Splat.

**Splat**—The perpendicular member placed between the two uprights of a chair back.

**Splay**—The outward spreading or slanting of a surface.

**Split Spindle**—A spindle split lengthwise, its sections applied to a surface.

**Spokeshave**—A tool of the plane type, having two handles with blade set in between longitudinally with the handles.

**Spoon Back**—A chair back shaped to fit the contour of the body.

**Spoon Cases**—Cases for holding spoons, resembling knife-boxes.

**Spooning**—The process of hollowing out or shaping spoon-backs.

**Spoon-Rack**—A small piece of hanging furniture used for holding spoons.

**Spool Turning**—Continuous turning of the same form or pattern.

**Springs**—Bent or curved metal, usually in the form of a wire coil or weave, used in upholstery, beds, etc.

**Spring Edge (Uphol.)**—An edge supported by springs so it may be depressed as distinguished from the hard edge which maintains its form even under pressure.

**Spring Rocker**—A rocking chair secured to a stationary base and equipped with sets of springs beneath to add to the momentum of rocking.

**Spring-Up (Uphol.)**—Process of applying coil springs to the seat of a chair to create a resilient foundation.

**Sprung Moulding**—A curved moulding.

**Spur**—A sharp pointed tool used for cutting into various lengths of rotary veneer as it is cut from a log of longer length.

**Spurious Furniture**—See Counterfeits.

**Squab**—A loose seat resembling a cushion.

**Square**—An instrument of "L" or "T" shape, used for measuring angles.

**Square-Back Chair**—A chair the back of which is formed by straight lines, characteristic of Sheraton.

**Square Leg**—A straight square-shaped leg, often having a beveled inner edge, used by Chippendale in his Chinese designs.

**S-Scroll**—A scroll in the form of the letter S.

**Stand**—A small table, light or heavily decorated, used for holding or displaying articles.

**Standard**—The upright supports of a swing glass or the like. Also a term sometimes used to refer to a large chest bound with iron bands.

**Standing Buffet**—An old-style buffet, which was mounted on a stand.

**Step Ladder Chair**—(Mod.) A piece of kitchen furniture in the form of steps and stool combined.

**Stepped Curve**—A broken curve, usually by a right angle.

**Stick-Back**—A chair back having a series of vertical rods reaching from the top-rail to the seat, such as a Windsor chair.

**Stiles**—The outside vertical parts of a frame.

**Stitched Edge (Uphol.)**—A shaped edge pad covered with burlap and stitched through and through to give solidity.

**Stitched-Up**—An upholsterers term used to refer to a seat, the rails of which have also been covered.

**Stock**—The rail of a bed away from a wall.

**Stool**—A seat or support having neither back nor arms.

**Stopped Channel Fluting**—An interrupted fluting made of a series of grooves or channels.

**St. Peter's Chair**—An ecclesiastical chair believed to have been made about the Sixth century, now in St. Peter's church, Rome. Made of wood ornamented with carved ivory and gold, with bands of iron; plain surface; Byzantine period.

**Straight Front**—A front, aside from its decoration, having a plain surface.

**Straight Pediment**—A pediment of triangular shape, forming a point at the top.

**Straining**—An upholsterer's term referring to the stretching of upholstery over surfaces of wood.

**Strap Hinge**—A hinge with long projections or straps by which it is fastened.

**Strapwork**—Crossed or interlaced bands used as an ornamental feature.

**Straw Marquetry**—A form of marquetry using colored straw for inlay.

**Streak**—A kind of stripe in the grain of wood; in walnut and gum, caused by either a growth ring or growth effect from localized pigment.

**Stretchers**—The underbracing of chairs, tables, etc., often of elaborate decoration and form.

**Stringing**—A narrow band in inlay.

**Stripe**—Figure in wood resembling a wavy line or streak.

**Strips**—The runners or bearers of a drawer; also a figure in wood resembling a wavy line or streak.

**Stub Foot**—A foot of short tapering lines.

**Stub Tenon**—Short tenon.

**Stuck Moulding**—Moulding worked upon the solid of a carcase.

**Studs**—Large or fancy-headed nails, often placed so as to form a design.

**Stuff-Over Seat**—A seat upholstered in a stitched-up manner.

**Stump**—Figured veneer cut from stump, usually from walnut, ash, maple, etc.

**Stump Bedstead**—A term applied to bedsteads having neither posts nor tester.

**Stump Foot**—The termination of a leg, having the same form as the rest of the leg, actually having no foot.

**Stump Work**—A form of embroidery work.

**Style**—A definite form or design characteristic of a certain school or period.

**Styles**—See *Stiles*.

**Suite**—The pieces of furniture which make up a set, such as a dining-room suite, a bedroom suite, etc.

**Summer-Bed**—An unusual style of Sheraton's four-poster, made up of two single beds joined together by a cornice.

**Sunburst**—A figure in wood, showing divergent figure or rays from the central joint to an outer radius. Caused by an unusual crotch effect generally appearing in logs which have been bruised or have suffered some sort of accident when young trees.

**Sunk Panel**—A panel set into pilasters.

**Sunk Top**—A table top having a raised decoration around the edge, such as a gallery, moulding, etc.

**Surbase**—A wide, or series of mouldings placed under the cornice of tables or cabinet work.

**Swag**—A festoon design, characteristic of the Adam style.

**Swan-Neck Pediment**—A pediment broken into curves with a small pedestal or other ornament in the center.

**Swastika**—A primitive symbolico-religious ornament, having arms bent at right angles.

**Sweep-Front**—A front slightly curved.

**Swept-Whorl Top Rail**—The top rail of a chair which has a spiral design at either end.

**Swing Glass**—A mirror which is held between two uprights so as to swing to any slant, such as a cheval glass.

**Swing-Post**—The upright post of a cupboard on which the door swings by means of hinges. The term is usually used together with clap-post.

**Swivel Chair**—A revolving chair.

**Tabaret**—A silk upholstery with a satin stripe.

**Tabernacle**—A niche in a piece of furniture for a statue, vase, or the like.

**Table**—A piece of furniture consisting of a flat horizontal surface fixed on legs, of infinite variety.

**Table Chair**—An old form of folding furniture, consisting of a high-back armchair, usually long, the back of which folds over onto the arms and formed a table top.

**Table Dormant**—A long table of the Middle Ages.

**Table Lamp**—(Mod.) A lamp of various styles and shapes suitable for placing upon a table.

**Table Moulding**—A circular moulding between the flutings of a column.

**Tablet Chair**—A chair with a large flat arm serving as a table.

**Tabouret**—An upholstered stool originally of the French court.

**Taffeta**—A silk fabric used for upholstery.

**Tailpiece**—A term used to refer to the tongue of a Windsor chair.

**Tall-Boy**—A style of chest of drawers made up of two distinct parts, a lower section of long drawers and an upper section of drawers with several small drawers across the top.

**Tall-Case Clock**—A grandfather clock.

**Talon and Ball Foot**—Same as Claw-and-Ball Foot.

**Tambour Top**—See Roll-Top Desk.

**Tang**—The part of a tool which is enclosed by the handle.

**Taped Joint**—A joint held together by means of tape glued to the veneer.

**Taper Foot**—Same as Spade Foot.

**Taper Leg**—See Therm Leg.

**Tapestry**—A loosely woven fabric for draperies and upholstery, made of silk and wool or linen and wool, and usually of very pictorial design.

**Taping Machine**—Machine for applying the tape to the veneer in taped joints.

**Tarsia**—Same as Intarsia.

**Tassel**—A pendent ornament hung with draperies; also the carved likeness of such an ornament.

**Taste**—One's idea of what is beautiful, most excellent, or pleasing in furniture.

**Tea-Caddy**—A miniature chest for holding tea, used in England during the Eighteenth century.

**Tea-Kettle Stand**—Small tripod stand for holding a kettle, often having a gallery around the top.

**Teapoy**—A small ornamental stand, usually of three legs, with caddies for holding tea.

**Tea-Table**—A small light, English table for serving tea.

**Telamones**—Same as Atlantes.

**Telephone Cabinet**—(Mod.) A small ornamental cabinet in which a telephone is concealed.

**Telephone Set**—(Mod.) A telephone stand or cabinet with accompanying chair or bench.

**Telephone Stand or Table**—(Mod.) A small, light table on which to rest a telephone.

**Templet**—A pattern of thin wood or metal used as a guide in shaping.

**Tenon**—The projecting part which makes up a mortise joint. See Mortise.

**Tenon Saw**—A type of long back saw.

**Tent Bed**—Same as Field Bed.

**Term**—A pillar or pedestal, smaller at the base, topped usually by a bust.

**Terminal**—An ornamentation in the form of human figures, etc., used as a finish in prominent places.

**Tern Foot**—A form of scroll foot having three scrolls or lines.

**Terry Clock**—An Early American short case clock with scroll top and pillar on either side of painted glass front.

**Tester**—The top or roof of a four-post bed, either of wood or fabric.

**Tete-a-Tete**—See Siamoise.

**Therm Foot**—Same as Spade Foot.

**Therm Leg**—A tapered leg of four sides.

**Therming**—The process of shaping therm legs.

**Thickening Up**—A term which refers to the placing of a strip of wood around the under edge of a table top to give the appearance of greater thickness.

**Thimble Toe**—Same as Spade Foot.

**Three-Drawer Chest**—A chest with three long drawers below.

**Three Ply**—Plywood built, using three separate plies.

**Throne Chair**—A chair, all parts of which are turned.

**Thumb Moulding**—A convex cornice moulding, resembling the shape of a thumb with the nail down.

**Thumb Plane**—A small tool plane.

**Till**—A compartment, usually secret, placed in desks, etc., for the safe keeping of money, jewels, etc.

**Tilting Coffers**—Coffers, or chests, decorated with scenes of fighting knights and the like.

**Tilt-Top Table**—A table with top which may be tilted over in a vertical position.

**Time-Piece**—Any type of clock.

**Tinsil Fringe**—Bullion fringe.

**Tip-Up Table**—A table the top of which folds down at the side or tips up in a horizontal position.

**Toat**—The handle of a plane.

**Toddy-Table**—A small Georgian table resembling an urn-stand.

**Toe**—The end or tip of a foot.

**Toilet-Glass**—A small cheval-glass made suitable to stand on dressing-tables or the like.

**Toilet-Table**—Same as Dressing-Table.

**Tongue**—The back projecting support of the fiddle brace of a Windsor chair.

**Toothing Plane**—Plane having jagged edge, used for preparing surfaces for veneer, etc.

**Tooth Ornament**—A carved detail consisting of a projecting repeat ornament used mostly on mouldings. Same as Dog-Tooth.

**Top Rail**—The topmost rail of a chair back, running between the two uprights.



**Torch**—A decorative feature in the form of a torch, often used as a terminal.

**Torchere**—Same as Gueridon.

**Tortiseshell**—The shell of a sea-turtle, used to a great extent in Boulle work.

**Torus**—A large semi-circular convex moulding.

**Tour**—A French revolving chair.

**Tow**—Flax fiber which is used as stuffing in upholstery.

**Towel Horse**—A light wooden framework with cross pieces used for hanging towels, often made to match a washstand.

**Towel Rail**—See Towel Horse.

**Tracery**—A design of ramified lines resembling the decorative head of Gothic windows, used mostly as a carved ornamentation.

**Trammel**—An instrument for drawing ellipses.

**Trampson**—A word formerly used to refer to the surface of a bed.

**Transition Chair**—An early Eighteenth century chair combining the Flemish and Dutch styles.

**Tray**—A shallow drawer fitted into the case of a dresser, etc., usually in the top part.

**Tray Table**—(Mod.) A small stand or table supporting a tray.

**Tray-Top Table**—A small, gallery-top table.

**Trefoil**—A three-lobed ornamentation of Gothic origin, resembling the shape of a clover leaf.

**Trellis-Work**—A cross-bar or lattice work, used as a design for galleries, chair backs, etc.

**Trench**—See Groove.

**Trestle**—An early, heavy frame support for tables.

**Trestle Foot**—A leg termination extending in opposite directions so as to form a sort of two-way foot.

**Trestle Table**—An early form of table supported by trestles.

**Triangle-Seat**—See Corner Armchair.

**Tricot**—An inexpensive cotton tapestry.

**Tri-darn**—A Welsh cupboard.

**Triglyph**—A pattern of ornamentation composed of a regular recurring design of three grooves or glyphs in the form of two grooves and two half grooves.

**Trio Tables**—Nested tables of three.

**Triple Mirror**—The mirror of a dressing-table made in three sections, the two side sections of which are adjustable.

**Tripod Table**—A small table supported by a pillar terminating in three legs, of various design and decoration, of Chipendale fame.

**Trivet**—A three-legged metal table or stand used for placing dishes near the hearth.

**Trochilus**—A concave, classic moulding.

**Trophies**—An ornamental design representing a collection of war trophies, such as weapons, flags, etc.

**Truckle Bed**—Same as Trundle Bed.



**Trumpet-Shaped Leg**—A turned leg resembling a trumpet, the small end of which joins the foot.

**Trundle Bed**—A bed with very low frame so it can be placed under another bed when not in use.

**Truss**—A support or bracket often highly ornamental.

**Try Plane**—Plane used for trueing-up.

**Tub Chair**—A large easy chair with wide wings, for an invalid to recline upon; Sheraton style.

**Tub Front**—See Block Front.

**Tub Sofa**—A sofa slightly curved in concave form.

**Tuck-Away Table**—A small folding gate-leg table, of Early American style.

**Tudor Arch**—A four centered, obtusely pointed arch, characteristic of English architecture of the Tudor period.

**Tudor Rose**—A carved motif in the form of a conventionalized rose.

**Tufting (Uphol.)**—The act of building up a buttoned surface or of inserting buttons so as to tie down the upholstered surface of a piece of furniture.

**Tulip**—A conventional design often used in carving, representing the tulip flower and leaf.

**Tunbridge Ware**—A decorative veneer, resembling mosaic.

**Turkey Work**—An embroidery work of Oriental design, used for upholstery.

**Turkish Chair**—A spring rocker.

**Turned Bulbous Leg**—A leg turned in bulb forms.

**Turned Knob Leg**—A leg turned in knob forms.

**Turned Null Leg**—A leg turned to resemble a series of balls or large beads.

**Turned Three-Legged Chair**—A chair with a triangular seat supported by three turned legs and having a back formed of turned parts; also known as buffet chair.

**Turning**—The method of shaping parts of furniture into a circular form, such as turned legs, stretchers, etc.

**Turtle Back**—An oval-shaped boss.

**Twin Beds**—(Mod.) Two single beds of the same design.

**Twist**—A spiral turning.

**Twisted Carving**—Carving, the design of which is of spiral form.

**Two-Drawer Chest**—A chest with two long drawers below.

**Umbrella-Shaped Leg**—Same as Trumpet-Shaped Leg.

**Underbraced**—Used to refer to a piece of furniture strengthened by stretchers.

**Under-Framing**—The part of the framework of a piece of furniture which runs round the lower part, as the plinth; in chairs and the like, the frame around the seat.

**Unilateral Double**—A scroll with volutes all turning in the same direction.

**Unilateral Flemish**—A Flemish scroll whose volutes turn in the same direction.

**Upholstery**—The coverings, draperies, or cushioning of a piece of furniture, such as of leather, tapestry, silk, etc.

**Uprights**—The outer vertical stiles of a chair back.

**Urn**—A vase-shaped receptacle also used for ornamental purposes, on a sideboard, as a finial of a broken pediment, etc.

**Urn Table or Stand**—A small light Chippendale table for holding silver urns or other dishes.

**Utrecht Velvet**—A velvet made of mohair, usually with a design formed by the pressing down of the pile.

**Valance**—The drapery of the tester of a bed.

**Vanity**—A form of dressing-table with a long center mirror, often with side or wing mirrors, a shelf at the foot of the central glass and a tier of drawers at each end.

**Vargueno**—A decorative cabinet of a form originating in Spain, the body being rectangular and supported on legs of an ornamental frame work, and the front opening downwards on hinges to serve as a writing desk.

**Varnish**—A paint solution used to produce a transparent shiny finish on wood.

**Vase**—An ornamental design of that shape, much used by the Adams.

**Vase Lamp**—(Mod.) A table lamp with a vase base.

**Vase, Ring and Bulb**—A form of turning in these three shapes, a vase and bulb shape separated by a ring shape.

**Velour**—A fabric resembling velvet but of slightly higher pile.

**Velvet**—A smooth, silk fabric with a short thick nap, used for upholstery.

**Veneer**—A thin sheet of wood, usually of choice figure, glued to a solid or plywood surface of plain but not necessarily cheaper wood.

**Vernis Martin**—A process of lacquer work, invented by the Frenchman, Robert Martin.

**Vignette**—A running ornament of leaves and tendrils.

**Vis-a-Vis**—A name given the Siamoise sofa because the occupants sit opposite each other.

**Vitruvian Scroll**—A series of wave-like scrolls, much used as a carved band decoration.

**Volute**—A spiral scroll.

**Voyelle**—A French chair with a lyre-back upon which was fixed a padded top rail, used by men to sit astride of the seat and rest the elbows upon the back.

**Wagon Seat**—A piece of Early American furniture resembling a crude two-chair-back settee placed on a wooden frame and used both as a seat in a wagon and as a settee in the house.

**Wainscot Chair**—An old English armchair made of oak with solid panel back, often heavily ornamented.

**Walker**—See Baby Cage.

**Wall Furniture**—This term is used to refer to any piece of furniture either hanging or standing against a wall.

**Wall Mirror**—A mirror placed upon the wall, such as a pier glass.

**Wardrobe**—A large press or cupboard in which to hang clothes.

**Warming Pan**—A flat metal pan with wooden handle, which when filled with hot coals was used to warm the linen sheets on beds of former days.

**Warp**—A twisting or bulging of wood caused by moisture or heat; also, as applied to fabrics, the threads which run lengthwise of the goods.

**Warp Print**—In upholstery, material which has been colored by the dyeing of the warp threads before weaving.

**Washstand**—A small table or cabinet for holding basins, of various shapes and contrivances.

**Water Leaf**—A long narrow leaf design.

**Wave Scroll**—A vitruvian scroll.

**Wax**—A substance used for polishing and preserving furniture.

**Wax Inlaying**—A style of inlay in which a colored wax substance is used.

**Webbing**—Woven linen or jute band two and one half to four inches wide, used as a support for upholstering.

**Web Foot**—A grooved foot sometimes terminating a cabriole leg.

**Wedgewood**—A pottery ware of which ornamental plaques were made.

**Weft**—See Woof.

**Welsh Cabinet**—See Welsh Dresser.

**Welsh Corner Cabinet**—A piece of corner furniture for the dining room, the upper part of the front being open for the display of china.

**Welsh Dresser**—A dining-room cabinet with drawers below and open shelves above for the display of china.

**Whatnot**—A light ornamental piece of furniture consisting of a range of shelves for holding bric-a-brac, etc.

**Wheat-Ear**—A carved ornamentation representing a group of three or more ears of wheat, a characteristic detail of Hepplewhite.

**Wheel-Back Chair**—A chair the back of which is either round or oval in shape with a design radiating from the center, giving the back a wheel-like appearance.

**Wheel Chair**—An elaborately made wooden chair with round seat and semi-circular back, supported by six legs which are joined by underbracing crossed to resemble the spokes of a wheel.

**Whorl**—A spiral scroll design.

**Wicker Furniture**—A type of woven furniture.

**Wig Stand**—A tripod stand with shelves and drawers for wigs, powder, etc.

**Winding**—See Warp.

**Window Seat**—A long upholstered stool or small sofa with arms but no back placed in the nook of deep windows.

**Windsor Chair**—A type of chair, light in weight, with large wooden or rush seat, and any one of a considerable variety of backs, in spindle, slat or crossbar styles.

**Wine Cooler**—A metal lined wooden tub, often quite ornamental, made as part or to go with a sideboard or side table.

**Wine-Table**—A U-shaped table of elaborate design.

**Wing**—Side part of a piece of furniture projecting out so as to resemble a wing.

**Wing Bookcase**—A bookcase with a broken front, the side portions receding back from the central portion.

**Wing-Chair**—A forty-wink or grandfather chair.

**Winged-Claw Foot**—A heavy foot shaped like an animal's paw with wing-like pieces at each side.

**Wire Edge, Cane Edge**—A rod of wire or bamboo tied to the front edge of the front row of springs in the upholstered piece of furniture.

**Wood**—The substance of trees, the chief element of furniture.

**Wooden Hinges**—Hinges made entirely of wood, especially found on screens, running full length in solid formation, they exclude light or draught.

**Wood Wool**—A trade name given a fine grade of excelsior.

**Woof**—The cross threads in fabric, those running opposite to the warp threads.

**Work-Box**—A small ornamental chest or box with tray or drawer, used to hold sewing or embroidery work.

**Worm Holes**—Small curved holes bored into old furniture, by wood boring worms of different species; usually in soft wood.

**Woven Furniture**—A type of furniture built by the entwining or lacing of reeds or fibers with a wood framework to give strength.

**Writing-Arm Windsor**—A Windsor chair with a large arm used for a writing surface.

**Writing-Chair**—A large English chair with arms or some contrivance especially made for the purpose of writing.

**Writing-Desk**—A desk for writing purposes.

**Writing-Slide**—A slide fitted into desks, bureaux, chests of drawers, etc., which when pulled out can be used for writing upon.

**Writing-Table**—A table made for the purpose of writing, of infinite variety.

**X-Braced-Chair**—A chair with X-shaped underbracing or stretchers.

**X-shape Chair**—A chair of ancient origin, the supporting structure of which is X-shape, often elaborately decorated, frequently folding.

**X-shape Stool**—A stool resembling the X-shape chair.

**X-shape Stretchers**—Stretchers forming an X, either of straight or curved lines.

**"Yarn" Dyed**—See Piece-Dyed.

**Yorkshire Chair**—A small, carved, English chair of the Cromwellian period.

**Yorkshire Dresser**—A low-back dresser.

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